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KEY FACTORS AND STAGES OF COLLABORATION WITHIN COMMUNITY
COLLEGE/AUTOMOTIVE INDUSTRY SECTOR PARTNERSHIPS

A Dissertation
Presented to
The Faculty of the Educational Leadership Doctoral Program
Western Kentucky University
Bowling Green, Kentucky

In Partial Fulfillment
Of the Requirements for the Degree
Doctor of Education

By
Annette Parker

December 2012

KEY FACTORS AND STAGES OF COLLABORATION WITHIN COMMUNITY
COLLEGE/AUTOMOTIVE INDUSTRY SECTOR PARTNERSHIPS

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ACKNOWLEDGEMENTS

I would never have been able to finish my dissertation without the guidance of my committee members, help from friends, and support from my family, especially my husband.

I would like to express my deepest gratitude to my advisor, Dr. Randy Capps, for his excellent guidance, caring, and patience and for providing me with an excellent atmosphere for doing research. I would like to thank Dr. Keith Bird, who provided me with the opportunity to expand my knowledge and experience of workforce development and the national agenda to improve career and technical education through accelerated, competency-based, modularized curriculum. I would like to thank Dr. Sally Ray for teaching and inspiring me about case study research.

I would like to thank Dr. Katherine (Kitty) Manley, who, as a teacher educator, inspired me to make a difference in the lives of students, became a friend that I cherish, and counseled me by suggesting I do case study research. I also would like to thank Dr. Stanley Chase for providing me with the spiritual support to always bring everything back into focus.

Finally, I would like to thank my husband, Jeffrey Parker. He is always there cheering me on, enabling me to do the tough work, and standing by me through the good times and bad. I thank my ambassadors into the future; my children and grandchildren have made many sacrifices during this journey. I thank them and Jeffrey for the care he provided them on many occasions when I could not be there myself.

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KEY FACTORS AND STAGES OF COLLABORATION WITHIN COMMUNITY COLLEGE/AUTOMOTIVE INDUSTRY SECTOR PARTNERSHIPS

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December 2012

161 Pages

Directed by: Randall Capps, Keith Bird, and Sally Ray

Educational Leadership Doctoral Program

Western Kentucky University

As corporations compete they recognize the need to reengineer operations to reflect the impact of a globalized market and attract, retain, and grow the skill sets of employees as strategic assets. To meet the need for employee continuous learning, financial turbulence, and rapid technological advancements, corporations have accelerated the formation of collaborative partnerships with higher education. At the same time, higher education institutions have a growing number of working adult students in attendance and view collaboration with corporations as a means to increase enrollment and revenue streams. These factors have created an opportunity to explore the dynamics of key factors and stages of collaboration between community colleges and automotive manufacturers and suppliers to enhance the educational process.

This study examines the dynamics of college-industry partnerships through the Automotive Manufacturing Technical Education Collaborative (AMTEC) that includes community colleges from 12 states and several large automotive manufacturers and their tier suppliers. In this context, James Austin's (2000a) theoretical model of collaboration provides a promising framework in which to view college-industry interorganizational collaboration. The model is based on a continuum of stages in collaborative relationships, from philanthropic to transactional to integrative. The model also uses the

Wilder Collaboration Factors Inventory (WCFI), a set of success factors that influences the collaborative process. Data collection used for the case study includes survey results

to measure success factors of collaboration that influence the collaborative process and stages using Austin's collaboration continuum framework categories.

CHAPTER 1: OVERVIEW OF THE STUDY

As leaders in corporations look to compete in the competitive global economy, they recognize the importance of their employees as strategic assets. Research suggests that many corporations view their employees as one of their most vital assets (Caro, 2007). Corporations are reengineering as global impact drives the challenge to attract, retain, and grow the skill sets of employees. Caro wrote, “Central to employee development is the need for a workforce that has the capacity for continuous learning to meet the needs of the global economy” (p. 1). In direct competition with this need, the United States over the next 15 years will experience a profound demographic shift as nearly 75 million baby boomers retire, requiring corporations to replace this workforce with younger employees. At the same time, a growing workforce crisis exists in the United States, since the younger workforce cannot effectively access the labor market because they do not possess the skills necessary to advance in the current or future economy (Frazier, Laprade, Coxen, & Bird, 2011). This skills gap ultimately leaves industry without the talent to compete internationally. With the combined financial turbulence of world markets and rapid technological advancements, the development of business partnerships with higher education has accelerated.

The automotive manufacturing industry has undergone significant change over the past 25 years as its market and perspective have become global in scope (Gilmour, 1988). Through the 1970s, automotive companies primarily competed among themselves in the American market and conducted their international business on the multinational principle of investing and building where vehicles are sold. In the late 1990s, Detroit carmakers were convinced they could ride out the next volatile economic cycle, but soon

these leaders came to realize that permanent change was reshaping the industry (Eisenstein, 2009). Automotive manufacturing experienced the bringing together of “local, regional, and potential markets to form one big global market, which was of cosmic proportions for the automotive industry” (Gilmour, 1988, p. 23). These changes were affected by the first major energy crisis, which heightened attention on fuel economy; the emergence of the Japanese, Korean, and European auto assembly plants in the United States; floating currency exchanges and high interest rates; and, finally, a global financial crisis.

During the international financial crisis of 2008, automotive sales and production once again declined across the board; however, key markets turned around by the end of 2009, in part due to decisive action. Companies in the automotive sector responded with traditional crisis management (temporary downsizing, cost reductions, retraining, consolidation, innovation); and governments launched traditional stimuli packages (cash-for-clunkers, tax reductions on smaller and/or cleaner cars, etc.). Strategic initiatives were taken to improve the competitiveness of the domestic industry through consolidation and transformation to a “greener” industry by tightening environmental regulations, fuel efficiency, alternative fuels, and emission standards (Wad, 2010). Adapting to these rapid changes in technology and improved quality of products and services, companies faced increased demand for training of new or potential employees to increase productivity and to stay competitive (Jacobs, 1989). Educational needs and skills gaps in the 1940s caused corporations to build internal education programs for their employees. The value of these programs remains unclear as corporations question the high quality of training required to stay competitive. These factors have caused corporations to look to

the nation's educational institutions that already have the infrastructure, facilities, teaching experience, and educational knowledge to respond to the primary concerns that often lead managers to develop their own training programs (Jacobs, 1989). "There is currently a growing world-wide trend toward greater collaboration between academia and industry, an activity encouraged by the federal government as a means of enhancing national competitiveness and wealth creation" (Barnes, Pashby, & Gibbons, 2002, p. 272).

In order for the United States to keep its leadership position or competitiveness in the global economy, the workforce must keep pace with the knowledge and innovation in advanced manufacturing and other science, technology, engineering, and mathematics disciplines. A key challenge for automotive manufacturers will be maintaining a flexible workforce and developing new worker competencies that enable them to develop high performance work organizations that create jobs and value-added products and services (Patterson, 2005). Highly skilled engineers are part of the solution, but a need also exist for millions of middle-skilled (mid-level) workers and technicians for careers in emerging and high-growth industries such as health care, biotechnology, nanotechnology, clean energy, and advanced manufacturing (Soares & Steigleder, 2012). These types of workers generally have an associate degree or industry-recognized postsecondary credential, yet institutions of higher education are not producing the number of students needed by employers (Soares & Steigleder, 2012). Higher education institutions have recognized a growing demand for middle-skilled students, particularly during tough economic times and the changing nature of workforce demographics. They now see collaboration with corporations as a significant way in which to increase enrollment and revenue streams. Community college leaders' understanding of the need to develop new

worker competencies has created opportunity for transformative change in the way corporations and colleges explore the dynamics of collaborative partnerships (Bragg, 2001).

Corporations are not the only members of the partnership with challenges. A key challenge for community colleges is to carry out its diverse set of missions, particularly the role of providing open access and success. The open access mission of the community college has led to increased diversity of the student population including ethnicity, age, gender, and social economic status (Townsend & Dougherty, 2006). Those factors have increased the diversity of community college curricular offerings designed to meet students' needs and the outcomes associated with participating in and finishing a community college education (Bragg, 2001). However, the scale and adaptability of community colleges make them a strong choice for collaboration with the automotive industry to address a complex talent mix that requires knowledge and skills from both academic education and vocational training (Soares, 2010).

The mission of the community college is not static and has changed over time, with new missions emerging and older ones changing in importance as economic and political forces have changed (Townsend & Dougherty, 2006). Since inception, community colleges have carried out a number of complex and sometimes competing programs including transfer, vocational, developmental, and workforce and economic development missions (Bragg, 2001). The workforce and economic development mission of community colleges dates back to the 1910s but blossomed in the 1960s (Townsend & Dougherty, 2006). "A host of developments at the college level indicate partnerships will continue to be a fact of life for both college educators and business and

industry leaders in the foreseeable future” (Patterson, 2005, p. 10). This is due to a continuing emphasis on the ability of community colleges to support their mission related to economic development in a time of reduced local, state, and federal funding as a result of the financial crisis and the recent economic recession. Thus, community colleges will continue and expand the areas of collaboration, as well as seek grants and other revenues to invest in their activities to ensure success.

Recognizing the current economic imperative; the Obama administration has set aggressive goals for postsecondary attainment in the United States and has emphasized the unique role community colleges must play in achieving them (Soares, 2010). At the same time, community colleges face serious challenges dealing with tremendous student enrollment growth within the context of limited or diminishing resources (Frazier et al., 2011). The increased need to prepare a large number of individuals for middle-skilled jobs in business and industry puts an added strain on education leaders. This dilemma has necessitated collaboration between higher education and business and industry, leveraging their combined knowledge of labor markets, skills, pedagogy, and students (Soares, 2010).

The type of high-level partnership that Soares suggests is not unique, nor is it new. Public-private partnerships have existed for many years. Over 175 years ago, Alexis de Tocqueville cited extra governmental associations as America’s legacy to democracy (Davis, 1986). “In the 1940s in an effort to improve education and economic development for the region, the Allegheny Conference for Community Development was formed in Pittsburgh and still functions as one of the most vibrant examples of public-private partnership” (p. 5). “In recent decades, in response to rapid technological change

and increasing global competition, business and postsecondary education have been finding common cause in the preparation of the highly skilled workforce necessary to preserve the nation's competitiveness and economic opportunity" (Soares, 2010, p. 7). This trend doesn't appear to be changing. Research suggests that the 21st century will be an age of accelerated interdependence and cross-sector collaboration between nonprofits, corporations, and governments (Austin, 2000a).

Research Questions

Using the AMTEC community college members and AMTEC industry team members as a context for analysis, this study will address the following research question: What can we learn about the dynamics of college/industry collaboration by applying James Austin's theoretical model of strategic collaboration to the case of partnership between AMTEC community college partners and AMTEC industry partners as an example for college/industry partnerships in the United States? More specifically, the study will break down the overall question into the following more manageable parts:

1. What are the key factors and stages of collaboration for the AMTEC college/industry partnerships as seen through the research of WCFI and as used by Austin?
2. What is the difference in perception of the stages of collaboration in terms of strengths and value between the AMTEC industry and education partners? Which of the factors has the strongest relationship to Austin's collaboration stages?

3. What recommendations can be made for strengthening college/industry collaborations based on the collaborative factors and framework in the research?

Significance of the Study

The AMTEC as a model for transformative change has originated from America's heartland, the base of the American manufacturing sector, especially the automobile industry located along Interstate 75 from Michigan to Georgia (Simon, Waits, Fulton, & Bird, 2010). AMTEC is a National Center of Excellence administered through the Kentucky Community and Technical College System and funded by the National Science Foundation. The AMTEC mission is to create and sustain an innovative, responsive, and standards-based workforce development partnership that meets the automotive industry's skill requirements.

The idea of an auto manufacturer working collaboratively with a community college isn't new. In Michigan, the Big Three auto companies have been working with community colleges for decades. What is new is collaboration by community colleges and auto-related plants in 12 states to identify a common set of technical skills required in their plants and a common curriculum and method of teaching with a focus on multi-skilled maintenance workers in the auto industry have those skills. (Simon et al., p. 8)

Every leader of a collaborative partnership wants to understand the type of collaboration they have and how it might evolve over time. All collaborations evolve over time because the relationships within the partnership involve an exchange of values between the participants. However, key factors apply to the stages of collaboration

within the partnership including value creation, balance, and renewal that are central to the creation and continued development of a collaboration. Theoretical and empirical studies on public private partnerships involving many disciplines have a decades-long history, and they continue to attract scholarly attention, yet there has been very little research surrounding alliances between business and nonprofits (Austin, 2000a). This study focuses on advancing the knowledge and understanding of collaborative partnerships through a college/automotive industry collaboration that applies Austin's research-based key factors and stages of collaboration. This research will provide leaders with important research regarding how businesses and nonprofits move along the continuum of stages of collaboration and the key factors that affect the partnership's evolution.

AMTEC's vision is to be a nationally recognized collaboration of colleges and companies working to strengthen the competency and global competitiveness of the automotive manufacturing workforce. Achieving this vision required building trusting relationships between community colleges and competing automotive companies, a unique and time consuming process that fosters the ability and the desire to share among competitors (Walton, 2011). A study of AMTEC's philosophy and practice should provide practitioners with knowledge about collaborations between community colleges and industry and will reveal an important phenomenon that merits further study (Austin, 2000a). Such knowledge is necessary to deepen our understanding of collaborative dynamics and performance determinants, particularly key factors that lead to and support the development of collaborations like AMTEC. Several key factors that provide merit for this research include differing performance measures, competitive dynamics,

organizational cultures, decision-making styles, personnel competencies, professional languages, incentive and motivational structures, and emotional content (Austin, 2000a). Results of this research should provide answers regarding the evolution of collaborations that can be used to create similar community college/industry partnerships to address the preparation of the highly skilled workforce necessary to preserve competitiveness and economic opportunity. As we enter an age of increased community college/industry partnerships that strengthen our economic competitiveness, such collaboration is not easy. Therefore, this study can provide understanding and can drive further research that others can be applied and adapted to other partnerships.

CHAPTER 2: REVIEW OF THE LITERATURE

The Literature Review offers a multi-faceted approach to the topic of collaborations. The chapter begins with an overview of collaboration and its development as a way of framing the importance of the study. The various theories that have addressed these developments and have shown how the current study contributes to future dialogue are critically reviewed. Additionally, the literature review shares with the reader a range of collaboration models and their underlying theories. Also included is the means by which the Austin model will be used to address the research questions and why it is being applied to the present study of the AMTEC college-automotive industry partnerships. The review considers what is known about education and industry partnerships and, more specifically, college-automotive industry partnerships. The conclusion outlines the conceptual framework for this dissertation and the foundation for the research questions.

Importance of Collaboration

“Collaboration among human service, government, and community organizations intensified during the last fifteen years of the twentieth century” (Mattessich, Murray-Close, & Monsey, 2008, p. 2). Leaders look to collaborations not only to accomplish tasks but also to improve community conditions, reinforce social fibers, and increase capacity the to accomplish more. Each collaborative effort may appear to be unique, but each also may be indicative of a larger trend in society due in part to environmental turbulence (Gray, 1989).

The United States economy is increasingly knowledge-centered and presents challenges and opportunities for industry leaders, workers, and communities to find ways

to remain competitive in today's global economy (Frazier et al., 2011). The global economy requires knowledge and capabilities that drive growth and competitive advantage (Pisano & Shih, 2012). One of the challenges industry leaders experience is finding workers with the skills that allow their companies to grow and prosper, which is especially prevalent in manufacturing industries (Frazier et al., 2011). Over the past several decades American manufacturing companies have "off shored" a number of their operations, primarily based on narrow financial criteria, which does not consider the potential strategic value of domestic locations and innovation (Pisano & Shih, 2012). The manufacturing engineers and technicians who know the most about how these decisions might affect innovation were not involved in the decisions. This omission has had an effect in industries such as steel, textiles, contact lenses, and consumer electronics. One example is the Boeing 787 Dreamliner that had modular components of the aircraft built all over the globe. Because the shift in design from aluminum alloys to carbon-fiber-composite materials was contracted out to plants all over the globe, problems were experienced in assembling pieces and caused major delays to project completion (Pisano & Shih, 2012).

Off shoring has caused a shortage of workers with the proper skill sets for jobs that industry leaders need in order to innovate, specifically in the manufacturing sector. These leaders have shared that they would prefer to do more manufacturing in the United States, but they are unable to find people with the right technical skills (Pisano & Shih, 2012). As corporations compete in a global economy, the need is recognized the need to reengineer their global impact and attract, retain, and grow the skill sets of employees, thus recognizing them as strategic assets. To address the need for employee skill

development, financial turbulence, and rapid technological advancements, corporations have accelerated the development of collaborative partnerships with higher education (Caro, 2007).

As manufacturing leaders closed plants and scaled back, workers in these occupations moved into other jobs or retired, which is one factor in the shortage of those with the proper technical skills (Pisano & Shih, 2012). A negative perception of manufacturing and fewer job prospects in the future led young people to choose other career options. This affected higher education enrollments in programs that are expensive to offer, thus forcing the closure of these programs during tough economic times. At the same time, companies began to see a widening mismatch between the skills their employees' possessed and new skills needed for the future, especially as these leaders began to eliminate layers of management (Harkins & Giber, 1989).

Higher education institutions have experienced significant growth in enrollment as a result of the recent financial crisis, but their budgets were flat or reduced. In order to meet enrollment growth and demand for new funds, institutions view collaboration with corporations as a means to support the increase in enrollment through potential revenue streams. Because the problems faced in preparing a globally competitive workforce are too complex and important to be accomplished by any individual entity or organization working alone, public and private sector partners must collaborate to identify the core challenges and develop strategic and innovative solutions (Frazier et al., 2011). Close integration of employer needs and higher education programs offers several advantages including the standardization of curriculum, which makes expectations clear for both employers and students (Henschel, 2012).

Factors Contributing to Collaboration

To understand this research, it is important to look at the key factors that impact collaboration and were identified by James Austin (2000a) and others, particularly in the field of industry-education partnerships. Businesses and nonprofits sometimes perceive a natural strategic fit because they have mutual interests; however, even when a strategic fit is not immediately obvious, they can discover common ground by working together (Austin, 2000b).

Globalization, information technology, and industrial consolidation have been identified as factors that cause intensification of collaborative arrangements (Kanter, 1999). Chalhoub (2007) saw advancements in information technology as a major factor that supports collaboration as companies observe their competitors entering their markets and consumer demand. A decreasing sense of physical constraint is found in a globalization, and the revolution in information technology has changed the rules of competition due to the quick access and analysis of data.

Additional factors emerge from the literature and help provide greater insight into reasons for increased collaboration. Turbulence has been identified as a factor as organizations become highly interdependent. Collaboration offers an antidote to turbulence by building a collective capacity to reduce unintended consequences, appreciations, and shared resources (Gray, 1989). Gray identifies rapid economic and technological change, declining productivity in manufacturing and competition; global interdependence; blurring of boundaries between business, government, and labor; shrinking federal revenue; and dissatisfaction with the judicial process as factors that increase environmental turbulence and result in incentives to collaborate. As the

definition of turbulence implies, many of these factors are interconnected and may be causes or consequences of others.

The impact of economic and technological change has forced a dramatic overhaul of many industries in the United States, and the automotive industry exemplifies the impact of these changes (Gray, 1989). The industry has changed rapidly and substantially over the past 35 years as its market perspective became global in scope. Prior to the globalization of automobiles, there were several national or regional automotive markets around the world and the vehicles were produced by manufacturers located in those markets. The Detroit automakers invested in those markets and experienced the doubling of demand for cars and trucks between 1950 and 1963, and again doubling by 1973 despite the energy crisis of 1973-1974 (Gilmour, 1988). However, the competitive environment changed as local and regional markets came together to form a global market. Gilmour identifies the key factors that converged to the disadvantage of the United States based automotive industry: an energy crisis that heightened the attention paid to fuel economy, the Japanese automotive industry's ability to manufacture small fuel efficient vehicles, and floating currency rates that drove up the cost of car ownership. In 2008 and throughout 2009 the global recession put the world's automotive industry in crisis, and sales plummeted to historically low levels (Dziczek, 2010). General Motors and Chrysler were provided loans in 2008 from the United States government to avert economic catastrophe that lead to managed bankruptcies (Dziczek, 2010).

To enable the United States to keep its leadership position in the global economy, the workforce must keep pace with the knowledge and innovation that drives the development of new industries (Soares & Steigleder, 2012). In response to rapid

technological change and increasing global competition, business and postsecondary education have been finding common cause in the preparation of the highly skilled workforce (Soares, 2010). A key factor that encourages higher education leaders to collaborate with business includes government encouragement, particularly in grant funding, as leaders have experienced flat or reduced budgets during the recent recession (Barnes et al., 2002). Governments have increasingly become involved as the catalyst in fostering more collaboration between the public and private sectors, which on occasion are a requirement for partnership arrangements (Austin, 2000a). Bragg (2001) suggests that a “new vocationalism” is emerging that relies on collaborative arrangements with business and government to meet labor market needs in the new economy. Chaskin’s (2001) research suggests that key factors in collaborations include the existence of resources ranging from the skills of individuals to the strength of organizations to access financial capital. One factor includes the networks or relationships between the partnering organizations. Leadership and support of mechanisms for processes of participation by community members in collective action and problem solving also are identified as significant factors (Chaskin, 2001).

The WCFI is research-based and identifies 20 success factors grouped into six categories that can be applied to assess collaborative efforts linking business organizations with nonprofit organizations (Mattessich et al., 2008). These researchers identified groups of factors as: the environment, group membership characteristics, group process and structure, communication, purpose, and resources. All are important to ensure the effectiveness of collaborative efforts. Environmental characteristics consist of geographic location and social context in which the collaborative group exists and

include factors such as history, community leadership, and a favorable political and social climate. Factors related to membership characteristics include mutual respect, understanding and trust, a cross section of membership that sees collaboration in their best interest, and the ability to compromise. Factors related to process and structure include a shared stake in process and outcome, multiple layers of participation amongst partners, flexibility or openness to varied ways of organizing, clear roles and policy guidelines, adaptability to changes, and an appropriate pace of goal development. Communication factors include open and frequent communication as well as informal relationships and communication. Concrete and attainable goals and objectives, a shared vision, and a unique purpose are considered purpose factors. Factors related to resources include sufficient funds, staff, materials, and time, and skilled leadership (Mattessich et al., 2008).

Definition of Collaboration

The *Merriam-Webster Dictionary* defines collaboration as “to work jointly with others or together especially in an intellectual endeavor” (Britannica, 2012). A number of researchers in the field of interorganizational collaboration suggest that Emery and Trist (1973) introduced the term “collaboration” into the field of organizational development (Roberts & Bradley, 1991).

Gray (1989) first described collaboration as “a process through which parties that see different aspects of a problem can explore their differences and search for solutions that go beyond their own limited vision of what is possible” (p. 5). In 1991, Wood and Gray expanded on Gray’s work to construct a commonly accepted definition of collaboration. Their research found the existence of many definitions of collaboration,

each having something different to offer and none being entirely satisfactory alone. They were looking for a definition that answers the following: “Who is doing what, with what means, toward which ends?” (Wood & Gray, 1991, p. 145). This research led them to create the following revised definition, which broadens that of Gray’s earlier definition: “Collaboration occurs when a group of autonomous stakeholders of a problem domain engage in an interactive process, using shared rules, norms, and structures, to act or decide on issues related to that domain” (Wood & Gray, 1991, p. 146).

Mattessich et al. (2008) define collaboration as a mutually beneficial and well-defined relationship entered into by two or more organizations to achieve common goals. “The relationship between collaborative partners includes a commitment to mutual relationships and goals; a jointly developed structure and shared responsibility; mutual authority and accountability for success; and sharing of resources and rewards” (p. 4). Individual organizations that are part of a collaborating organization are referred to as partners. Johnson and Youngmin (2008) describe teams as an essential part of collaborations, especially when pursuing important outcomes. There are several definitions for teams, but there is general agreement that teams consist of a number of people who are working toward a specified goal.

Austin (2000a) does not devote time in defining collaboration but acknowledges that it continues to “attract intense scholarly attention” (p. 70). He bases his understanding of the concept in the tradition of interorganizational relationship theory. A collaboration handbook based on Austin’s work in this field was produced through the Drucker Foundation and defines collaboration as “relationships that provide opportunities

for mutual benefits and results beyond those any single organization or sector could realize” (Austin & Hesselbein, 2002, p. 7).

For the purpose of this study, Austin’s model will be applied to the case study; however, Mattessich and colleagues (2008) provide a richer definition of collaboration. They define it more clearly from an operational behavior term, while Austin’s definition speaks strictly in terms of relationships. The behavioral context of Mattessich et al., (2008) allows one to assess whether an opportunity exists or not. Austin’s (2000a) definition speaks about opportunities but provides no guidelines to assist an organization in determining whether it may miss an opportunity (Patterson, 2005).

Theoretical Links to Collaboration – Interorganizational Relationships (IORs)

This section of the Literature Review provides research of interorganizational relationships (IORs) theory and assesses its significance to the study. Interorganizational theory is critical to understanding the dynamics of interorganizational collaboration (Patterson, 2005) because individual organizations have separate goals and the focus is on the collectivity of organizations within interorganizational collaborations (Savage et al., 2010). Several different theoretical perspectives have been used to conceptualize the interorganizational collaboration theory; however, this study will explore only resource dependence theory, strategic choice theory, stakeholder theory, organizational learning theory, and institutional theory (Barringer & Harrison, 2000; Franco, 2007). Because interorganizational collaboration affects the participating organizations that are important to understand within the context of this study, the Literature Review will explore three types of effects in collaboration literature: strategic, knowledge creation, and political effects. Interorganizational domain theory also is important for this study because it

emerges when organizations become dependent on one another due to their impact on stakeholder organizations (Franco, 2007). The size of the literature on interorganizational relationships is immense. Therefore it is important to note that, though each is useful, all are insufficient to capture the complexities involved in interorganizational collaborations (Barringer & Harrison, 2000).

Table 1:

Theoretical Explanations for Interorganizational Collaborations

Theoretical Paradigm	Description	Rationale for Interorganizational Collaboration	Representative Research
Resource Dependency	A theory rooted in an open system framework that argues that all organizations must engage in exchanges with their environment to obtain resources	Minimization of the sum of production and transaction cost. IORs can reduce uncertainty caused by market failure and reduce costs associated with establishing a hierarchy.	Scott (1987); Child & Faulkner (1998); Castanias & Helfat (2001); Barringer & Harrison, (2000)
Strategic Choice	Study of factors that provide opportunities for organizations to increase in competitiveness or market power. Profit and growth are typically the major firm objectives that drive strategic behavior.	An organization will enter in IOR if the financial benefits of doing so exceed the costs. IOR strategies may increase the ability of a firm to deliver superior products and services efficiently or work to decrease competition in an industry.	Barringer & Harrison (2000)
Stakeholder Theory	Organizations are at the center of an interdependent web of stakeholders and have a responsibility to consider the legitimate claims of their stakeholder when making decisions and carrying out business transactions.	Organizations form collaborations to align their own interests with the interests of stakeholders and also to reduce environmental uncertainty.	Freeman (1994); Harrison & St. John (1996); Branco & Rodrigues (2007)
Organizational Learning Theory	Concerned with the processes that lead to organizational learning. A key factor is absorptive capacity, which is defined as a firm's ability to recognize the value of new knowledge, assimilate it, and apply it in a business setting.	Absorb as much knowledge as possible from IOR partners, thus increasing organizational competencies and ultimately adding value to the organization.	McCourt (1988); Cohen & Levinthal (1990); Kumar & Nti (1998); Barringer & Harrison (2000)
Institutional Theory	Suggests that institutional environments impose pressures on organizations to appear legitimate and conform to prevailing social norms.	Organizations form IORs to obtain legitimacy or as, a result of succumbing to isomorphic pressures, by mimicking organizations that have established IORs.	DiMaggio & Powell, (1983); Oliver (1990); Alter & Hage (1993); Osborn & Hagedoorn (1997)

Resource dependence theory. Resource dependence theory is rooted in an open system framework that argues that all organizations must engage in exchanges with their environment to obtain resources (Scott, 1987). Characteristics of leaders who participated have important empirical implications for interorganizational performance based upon individual innate or learned leadership skills they have acquired or perfected in part through work experience. The members of the interorganizational collaboration may include leaders that have generic, related-industry, industry-specific, and firm-specific skills that can be even more fine-tuned to include skills in both narrowly and broadly defined industries, as well as skills in closely related and less closely related industries (Castanias & Helfat, 2001). Therefore, the members may have different skills and levels of ability for each type of skill within the interorganizational collaboration.

The diversity of skill differentials between members' success and failure could be traced in part to the prior experience and knowledge that influenced strategic choices, especially when undergoing change. It is important to note that, even when members have the potential, if effort and motivation are lacking or misdirected, they may fail to accomplish their goals (Castanias & Helfat, 2001). Research suggests that membership dependencies between member organizations of interorganizational collaborations must be managed to decrease dependencies. Balancing power of member organizations and participation in interorganizational relationships is one way to achieve these objectives (Barringer & Harrison, 2000). One common reason that fits into the resource dependence theory for the formation of interorganizational relationships is that the members enter into the partnership to take advantage of complementary assets. An example is "among small biotech firms and large pharmaceutical companies where the big companies are eager to

partner with small firms as a way of tapping into their cutting edge research and entrepreneurial energy” (Barringer & Harrison, 2000, p. 373). The resource dependency theory also includes many reasons for the formation of a partnership including access to special services at low cost, membership in trade associations, relevant industry information, legal and technical advice, or combining efforts of firms that possess unusual market power and prestige (Barringer & Harrison, 2000).

The limitations of the resource dependency theory include the explanation of alliance formation. For example, this theory does not explain why organizations pursue strategies other than partnerships to satisfy perceived deficiencies. These strategies might include mergers, acquisitions, recruitment of key personnel from competitors, and raising new capital to obtain a resource through a market transaction (Child & Faulkner, 1998). In addition, the theory that no organization is self-sufficient and must therefore interface with others to obtain needed resources does not address how the organizations decide to participate. As a result, variables such as transaction cost, opportunities to learn, and organizational legitimacy are left for other theories to decide (Barringer & Harrison, 2000). Finally, the resource dependency theory focuses on the need for critical resources and social exchange rather than the more complex challenge of describing how competencies are developed and how interorganizational transfers of competencies take place (Barringer & Harrison, 2000).

Strategic choice theory. The historical roots of the strategic choice theory grew out of economic arguments that firms pursue interorganizational collaborations to increase market competitiveness and power (Barringer & Harrison, 2000). Organizations oftentimes justify partnerships to gain short-term efficiency or resource-based rationales

such as increasing speed to market, increasing market power, or neutralizing or blocking the moves of competitors (Barringer & Harrison, 2000). For example, the US. Justice Department recently began investigating Apple as five major US. publishers made plans to sue the company, accusing them of colluding to raise the prices of electronic books to shut out competitors or drive up what consumers pay (CNBC LLC, 2012). More loosely formed partnerships also may be formed for strategic reasons such as the American Booksellers Association, a non-profit trade association that represents the owners of independent bookstores (Barringer & Harrison, 2000).

Many strategic reasons motivate organizations to form partnerships. They may have an interest in maximizing their ability to offer products or services, increase efficiency, or reduce cost. For example, BMW has engaged in talks with General Motors on future technologies such as fuel cells and is extending cooperation with PSA Peugeot Citroen on gasoline engines. In this case, BMW, the world's largest maker of luxury vehicles, is joining forces with a partner in North America to gain market penetration in fuel cell technology and with PSA Peugeot Citroen to advance their efforts in gasoline engines (Automotive News, 2012). Organizations often form international relationships to enter into foreign markets or to gain a competitive advantage (Antonelli & Pegoretti, 2008). The 2012 deepening economic crisis in Europe resulted in Fiat SpA's push to revive the Alfa Romeo brands in the United States using the Chrysler Group, LLC, which was acquired by Fiat through Chrysler's federally induced bankruptcy nearly three years ago (Howe, 2012). Chrysler's retooled US. plants and more competitive labor costs revived a product portfolio and plans to use the industrial Midwest to reintroduce the

storied Alfa brand to the German-dominated luxury market, representing the components of an emerging transnational automaker (Howe, 2012).

An organization's leadership can justify participation in any number of interorganizational collaboratives if deemed strategic and promise long-term profit maximization (Barringer & Harrison, 2000). One limitation of this perspective is the way in which researchers sort all of the existing interorganizational collaborations into meaningful groups that increase market power, political power, efficiency, provide products or services. Another limitation is that the strategic choice perspective and interorganizational collaborations is fragmented, and very few conclusions have been validated (Barringer & Harrison, 2000).

Stakeholder theory. The stakeholder theory sees the formation of stakeholders at the center of a network of stakeholders. Stakeholders are defined as any person or group that can affect or are affected by the organization (Freeman, 1994). Stakeholders can help an organization achieve its objectives; however, their relationships also can be a risk either voluntarily or involuntarily (Branco & Rodrigues, 2007). Thus, the stakeholder management perspective requires organizations to address the interests of all relevant stakeholders (Barringer & Harrison, 2000). One of the misperceptions of this theory is that all stakeholders are considered equal. As Harrison and St. John (1996) point out, one of the starting points in effective stakeholder management is determining which matter the most and then providing the oversight that resolves ethical issues when multiple competing stakeholders are in conflict (Barringer & Harrison, 2000, p. 376).

A perspective often found in the stakeholder literature is that organizations are good at coordinating stakeholder interest, which is cooperative systems (Branco &

Rodrigues, 2007). As a result of their cooperative nature, organizations are open to form collaboratives with stakeholders to achieve common objectives (Axelrod, Mitchell, Thomas, Bennett, & Bruderer, 1995). For example, in 1984 “the software incompatibility across operating systems induced several leading European, American, and Japanese computer manufacturers to form the X/Open group with the goal of encouraging the development of standards” (p. 1480). The first collaborative effort failed but led to another between AT&T, Sun, Digital Equipment Corporation (DEC), and International Business Machines Corporation (IBM) to develop a standardized operating system that supports industry standards and company could endorse (Axelrod et al., 1995).

A limitation of the stakeholder theory is that it has received considerable attention and theoretical development (Harrison & Freeman, 1999). Researchers have begun to test that theory. The only relationship that has been researched in depth is between shareholders and managers in the corporate form of organizations (Barringer & Harrison, 2000). Because the stakeholder theory has not been broadly researched a lack of empirical testing emerges, as well as significant practical limitations. For example, the ability of large corporations, such as General Motors or IBM, to engage all stakeholders is practically impossible. Stakeholder theory should be at a macro level rather than micro and also should be more descriptive than prescriptive to facilitate goal congruence (Barringer & Harrison, 2000).

Learning theory. One of the most widely cited motives in interorganizational literature for forming collaborative partnerships is acquisition of new technical skills or capabilities (Hardy, Phillips, & Lawrence, 2003). Interorganizational collaborations can be an effective means of transferring knowledge across organizations (Barringer &

Harrison, 2000). Trade associations are an example of the motivations of organizational participation to enhance learning. One example is the formation of the General Motors (GM) “Mr. Goodwrench” program that partnered with community and technical colleges to teach faculty about state-of-the-art technology. This program was envisioned as a way to provide a nationwide solution to the problem of preparing community college students to repair cars that used these advanced technologies (McCourt, 1988).

Studies have examined the contextual nature of learning through interorganizational collaboration. “Some researchers believe there is a divide in the organizational learning that takes place in interorganizational collaboration into two types of learning activities, exploration and exploitation” (Barringer & Harrison, 2000, p. 379). Exploration is when the members discover new opportunities such as wealth creation, innovation, invention, and basic research to build new capabilities, new business, or improve their current capacity (Cohen & Levinthal, 1990). Exploitation is associated with increasing the productivity of capital or assets by improving existing capabilities and reducing cost. Corporations often partner to increase economies of scale while reducing cost and improving efficiency (Barringer & Harrison, 2000). Because both exploration and exploitation are expensive, organizations often pursue interorganizational collaborations as a means of sharing the cost.

Absorptive capacity is an important variable that determines how much an organization can learn through interorganizational collaborations. Absorptive capacity is defined as the organization’s ability to recognize the value of new external knowledge, assimilate it, and apply it (Cohen & Levinthal, 1990). Absorptive capacity tends to develop cumulatively, is path dependent, and builds upon prior experience. Also an

organization's ability to learn is based on prior preparation, which is linked to the quality of the organization's employees, its knowledge base, the quality of its management information systems, organizational culture, and the presence of learning incentives (Kumar & Nti, 1998). Organizations with a better capacity to learn are better positioned to benefit from interorganizational partners, but this capacity can be acquired and improved through training and other forms of organizational development (Barringer & Harrison, 2000).

The limitations of this theory are its focus on skill development and transfers without focusing on the cost of increasing training, education, or hands-on interorganizational collaboration, which can be expensive. An organization needs a rational economic perspective to analyze the cost/need benefit prior to a decision to become involved in a interorganizational collaboration. Another limitation is the potential loss of proprietary information not within the scope of the interorganizational collaboration. As a result, inadvertent sharing of privileged information in an alliance is a risk that must be considered (Barringer & Harrison, 2000).

Institutional theory. Institutional theory (DiMaggio & Powell, 1983) suggests that institutional environments impose pressures on organizations to appear legitimate and conform to prevailing norms (Barringer & Harrison, 2000). Applying this theory to organizations suggests that organizational pressures exist to engage in interorganizational activities that appear to increase their legitimacy in agreement with prevailing rules, requirements, and norms of their organizational environments (Oliver, 1990). Increased legitimacy can be very important and obtained through interorganizational collaborations and open doors to other relationships that help gain access to critical resources and

expertise (Barringer & Harrison, 2000). Other institutional pressures motivate organizations to participate in interorganizational collaborations including enhancing the organization's reputation, visibility, or image.

Institutional theory is valuable in helping describe organizations' behaviors. Along with trying to obtain legitimacy to enhance an organization's reputation or demonstrate social worthiness, they also are motivated to simply conform as a means of acceptance and survival (Oliver, 1990). This process usually involves simply mimicking successful organizations (DiMaggio & Powell, 1983). Therefore, some organizations participate in interorganizational collaborations because other successful organizations are participating. If participation in interorganizational relationships becomes an embedded norm in a population, the organizations will participate in these relationships as a means of adaptation and survival (Alter & Hage, 1993).

This theory is limited because it is a narrow, behaviorally oriented paradigm (Barringer & Harrison, 2000). For example, it is difficult to explain why a particular form of collaboration exists. From a resource dependency perspective, when organizations imitate all others, little possibility exists to create from interorganizational collaborations any sources of sustainable competitive advantage (Osborn & Hagedoorn, 1997).

Models of Collaboration

The objective of this study is to advance the knowledge and understanding of community college-automotive industry collaborative partnerships. The research also will help community college and business and industry leaders to better understand the process of shared intellectual models of the partnership and the impact on team and

individual team member performance (Johnson & Youngmin, 2008). The method to achieve this understanding involves applying a conceptual model of collaboration to the case of the AMTEC community college and automotive industry partnerships. Various models of collaboration were analyzed prior to the identification of Austin's model of interorganizational collaboration as the most applicable. This section will highlight and critique three models of collaboration used by other investigators in dealing with similar interorganizational collaborations.

Alter and Hage model (1993). In *Organizations Working Together* by Alter and Hage (1993), they construct a business model of collaboration based on exhaustive analysis of networks of organizations such as clusters of single corporations, firms, and private voluntary organizations (Patterson, 2005). Similar to Austin (2000a), the model does not build new theory but is built upon a synthesis of existing paradigms and perspectives. Rather than building new theory, use existing theory is used to explain the underpinnings of their model (Patterson, 2005), while providing guidelines to facilitate collaboration among organizations.

The research provides four conditions necessary for successful collaboration: (a) willingness to collaborate, (b) need for expertise, (c) need for financial resources and sharing of risk, and (d) need for adaptive efficiency (Patterson, 2005). Figure 1 presents this evolutionary theory of collaboration as a synthesis of theories of interorganizational collaboration.

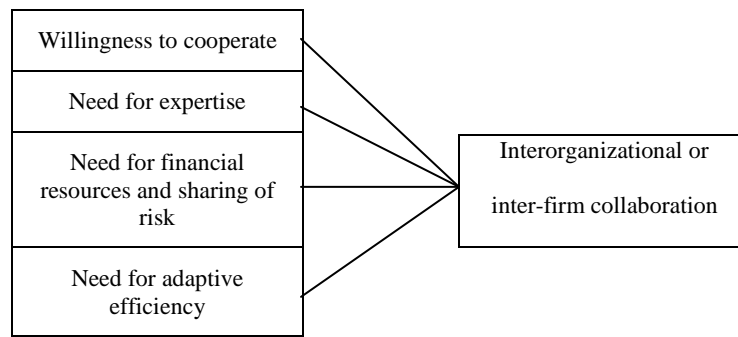


Figure 1. Alter & Hage Organizational Network Cluster. Adapted from Alter & Hage, 1993.

Alter and Hage (1993) identify 12 forms of interorganizational collaboration and demonstrate how each participates in forming the four variables necessary for collaboration (Patterson, 2005). However, Alter and Hage suggest that the four variables are not sufficient to entice organizations to enter into interorganizational collaboration because of the impact of key factors.

This model is limited because it is largely considered in the context of the business and industry sector and not industry and education, nor in the context of for-profit and non-profit organizations (Alter & Hage). The data used for this research sample consist of 15 service delivery networks in two urban counties in the United States. The authors warn that the study should be considered exploratory, given limitations due to small sample size and problems with measurement.

Couture, Delong and Wideman model of collaboration (1999). Couture, Delong and Wideman (1999), in *What We Have Learned by Building a Collaborative Partnership*, describe a successful collaborative partnership between K-12 schools and universities. The research provides factors that, when combined, affect the success or

failure of a collaborative. As Austin (2000a) suggests, they agree that contextual factors are important for success and need to be studied further. They cite as key factors the trusting relationships among project leaders and their organizations (Couture et al., 1999). Similar to Alter and Hage (1993), Couture and colleagues see collaboration as thriving when all variables identified in the model interact (Patterson, 2005). Table 2 outlines the factors and the key questions that frame the model.

Table 2
Couture, Delong, and Wideman Collaborative Framework

	Factors	Key Questions
1	Compelling Cause	To what extent is there a compelling cause to which project leaders and organizations can commit?
2	Challenging Provincial Context	To what extent does the provincial/state/national context support the importance of the partnership for individuals and organizations?
3	History of Collaboration	To what extent has a positive or negative history of trust and collaboration been developed among the project leaders and between the project leaders and key administrators in their respective organizations prior to the establishment of the partnership?
4	Relationships Based on Shared Values, Purposes and Collaborative Skills	To what extent do the project leaders share values, experience, and collaborative skills that can be used as a basis for developing understanding and agreement and resolving issues related to the project?
5	Ability to Influence Decision Making	To what extent are the project leaders able to influence decision making with their organizations in ways that enable the organizations to support the project?
6	Ability to Translate Organizational Commitment into Effective Action	To what extent are the organizations able to translate their commitment to the project into effective action?

Note. Taken from Couture, Delong, & Wideman, 1999.

This study confirms that general factors can be identified that affect the success or failure of collaborative partnerships (Couture et al., 1999). However, the researchers suggest a need for further study of the importance of contextual factors in the success of partnerships. They believe there are at least two interrelated factors that need to be considered: the context external to the partnering organizations and the context internal to each of the partnering organizations (Couture et al., 1999).

The strength of this model lies in the importance it attaches to the human side of collaborative arrangements, much like Kanter (1994), and they view managing

collaboration in human terms of success (Patterson, 2005). Chaskin (2001) also describes the networks or relationships between the partnering organizations and leadership and support mechanisms as key factors for collaborative arrangements.

This model is very effective in sector collaboration and provides a practical guide for educational institutions looking to improve performance through interorganizational collaboration (Patterson, 2005). However, a limitation for this study is that it has not been applied in the context of industry-education partnerships. Another limitation is the lack of any discussion of the significance of financial factors associated with collaboration (Patterson, 2005), especially for competing industry partnerships. However, a major factor within college-industry partnerships is the degree to which financial variables drive partnership development (Patterson, 2005).

Clarke and Fuller model of collaboration. Clarke and Fuller's (2010) model of collaboration involves cooperative cross-sector social-oriented partnerships and includes organizational partners with a similar ideology on sustainable development. This study used a process model for collaborative strategic management that builds on previous models such as McCann (1983), Gray (1985), and Waddell and Brown (1997), by incorporating organizational and collaboration levels while providing different types of outcomes and feedback loops (Clarke & Fuller, 2010). Clarke and Fuller use the term "collaborative strategy" to describe a collaborative vision and goals for both organizational and interorganizational action that provide resources to carry courses of action. The definition captures the efforts of organizations working both individually and jointly so that implementation includes the aggregation of partners' efforts. The collaborative strategic management involves the formation of partnerships across

organizations that represent collective joint activity, the formation of a collaborative strategic plan, and the implementation tactics employed at both the collaborative and organizational levels of analysis (Clarke & Fuller, 2010).

The Clarke and Fuller (2010) process model examines the strategic management within the partnering organizations as well as within the collaboration. This is notable because there is a rising prevalence of collaborations, is seen each of which collectively formulates and jointly implements a multi-organizational strategic plan. Also, this process model offers a distinct phase for identifying preconditions and another for implementing action strategies, rendering it unique and more comprehensive. Recent literature (Cropper, Ebers, Huxham, & Smith, 2008) has begun to differentiate between two levels within interorganizational collaborations; the full partnership level and the individual partners level.

Clarke and Fuller's (2010) six stages are:

- Context describes the situational considerations and partnership formation of the initial partners, initial form, and their communication and decision-making processes.
- Collaborative strategic plan formulation is the strategic plan development by the partnership (for the partnership) and the plan's content.
- Deliberate and emergent collaborative strategy implementation by the partnership is the actions taken by the partnership to further the collaborative strategic plan goals.
- Deliberate and emergent collaborations further the collaborative strategic plan goals.

- Realized collaborative strategy implementation outcomes are the results -- plan, process, partner, person, outside stakeholder, and environment-centric outcomes.
- Changes in the domain refers to changes that occur in the social problem domain that are outside the actions taken by the individual partner organizations or the partnership, yet have an impact on the collaborative strategy implementation outcomes and/or other stages of the process.

The Clarke and Fuller (2010) process model (Figure 2) was examined in two case studies of collaborative regional sustainable development partnerships that were bounded by geography and involved numerous partners including local businesses, universities, the municipal government, and nongovernmental organizations in Canada. The model began to differentiate between two levels within interorganizational collaborations: the full partnership level and the individual partner level. The communities were diverse in terms of scale, scope, complexity, and demographics to test the ability to scale the model.

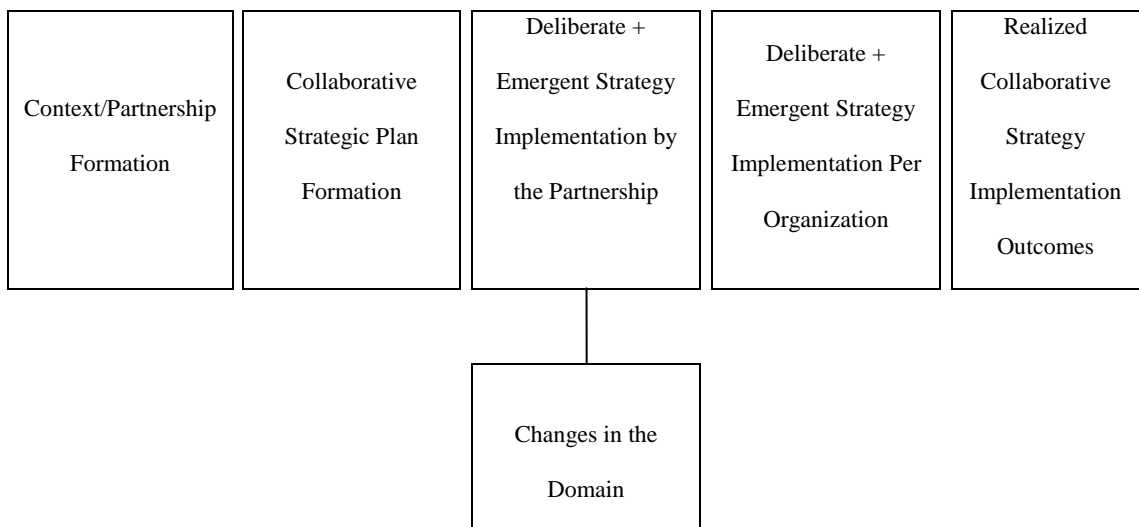


Figure 2. Clark and Fuller Process Model for Collaboration

This process model is important for related levels of implementation with different types of outcomes and continual feedback throughout formulation and implementation phases of collaboration. Some of the research preconditions limit the opportunities to generalize the model. For example, the research focuses on two community sustainable development initiatives that had variations among partner organizations. These preconditions allowed for differences in degrees of conformity with respect to shared interests, rather than differences in the kinds of interest. Second, and more important to the AMTEC study, is the extent to which the model can be scaled beyond a regional municipal context (Clarke & Fuller, 2010). Finally, the AMTEC partnership has been in existence for over seven years, so it is well past the formulation process and is now looking for a model that measures the local partnership collaborative phase to strengthen the existing partnerships.

Austin – The selected model of collaboration for this study. The previous section of the Literature Review examined three models of collaboration in addition to Austin's Collaboration Continuum: (a) The Alter and Hage (1993) model of collaboration that applied to a business context; (b) The Couture, Delong, and Wideman (1999) model involving same sector partnerships in the education field; and (c) the Clarke and Fuller (2010) model dealing with local businesses, universities, municipal government, and nongovernmental organizations partnerships. The deficiencies in the previous three described models help to make the case for the reason Austin's model of interorganizational collaboration was selected. The model was the most applicable for a case study of the National Center of Excellence in AMTEC partners that includes

community colleges from 12 states and several large automotive manufacturers and their tier suppliers.

This section of the Literature Review will examine the main features of Austin's theoretical model of collaboration, discuss why it is being applied to the case of partnership between AMTEC partners, and describe how it will be used to address the research questions. It is important to look in detail at Austin's model of collaboration, as it is the most applicable model in the case of the AMTEC partnerships.

Austin's model is based upon 15 cross-sector collaboration case studies. This Literature Review will describe Austin's cross-sector collaboration framework consisting of four components Austin calls the collaboration continuum, the collaboration value construct, the alliance drivers, and the alliance enablers. Each will be highlighted and discussed.

Collaboration continuum. Austin (2000a) suggests that the interaction between the nonprofit and the corporation can be usefully envisioned as a collaboration continuum. The different types of collaboration on the continuum are explained, each with distinct characteristics and functions, and some evolve from one type or stage to another. The research defines three stages: philanthropic, transactional, and integrative. In the philanthropic stage, the nature of the relationship is largely that of charitable donor and recipient. Austin suggests that most nonprofit-business relationships are philanthropic but increasingly they are migrating to the next level. In the transactional stage, explicit resource exchanges focus on specific activities such as caused related marketing, event sponsorships, and contractual service arrangements. In the integrative stage, partners, missions, people, and activities begin to merge into more collective action

and organizational integration. This alliance stage includes joint ventures and the highest strategic level of collaboration (Austin, 2000b).

As shown in Figure 3, if the relationship migrates along the collaboration continuum, the nature of the partnership changes. As the partners move along the collaboration continuum, the levels of engagement by the two organizations move from low to high, and the importance to the parties moves from peripheral to central. As a result, the magnitude of deployed financial, in-kind, and intangible resources grows as the scope of activities broadens significantly. As the partners move along the continuum, the relationship evolves from a simple task to a complex undertaking as the value increases from minor to major (Austin, 2000a).

Nature of Relationship	Stage I (Philanthropic)		Stage II (Transactional)		Stage III Integrative
Level of engagement	Low	⇒	⇒	⇒	High
Importance to mission	Peripheral	⇒	⇒	⇒	Central
Magnitude of resources	Small	⇒	⇒	⇒	Big
Scope of activities	Narrow	⇒	⇒	⇒	Broad
Interaction level	Infrequent	⇒	⇒	⇒	Intensive
Managerial complexity	Simple	⇒	⇒	⇒	Complex
Strategic value	Minor	⇒	⇒	⇒	Major

Figure 3. Collaboration Continuum. (Austin, Strategic Collaboration Between Nonprofits and Business, 2000a).

Austin's model allows the collaborators to locate their relationship on the continuum as a basis of discussing the type of relationship, how it is evolving, and where they want to go. It is important to note that progression along the continuum is not automatic, and regression can occur (Austin, 2000a). Another important fact is that the continuum is not normative; therefore, one stage is not necessarily better than another.

Movement along the continuum is determined by the conscious decisions and explicit actions of the partners. Austin's research suggests there are significant collaborative gains to be achieved by moving to a high level of engagement, yet the cost to obtain them also is great (Austin, 2000a). A benefit of the Austin model is that, if collaborators wish to move to a higher level stage, the collaboration continuum helps them assess the changes required in resources, processes, and attitude. The stages are not discrete and can blend into each other. Sometimes alliances have characteristics that tend to correspond with more than one stage as they evolve. These are characterized as hybrids, with different facets falling at different points of the continuum.

Austin (2000b) suggests that collaborators identify the purpose or function of each relationship, its relative importance, and its transformative potential as a strategic alliance. To illustrate the progression along the collaboration continuum, Austin explains the evolution of a 10-year-old alliance between City Year, a nonprofit dedicated to promoting community service through urban youth corps, and Timberland, a manufacturer of boots and other apparel.

Stage 1: Philanthropic. The partnership between City Year and Timberland began as philanthropic in 1988 with 50 pairs of boots as part of a uniform for City Year's youth service corps. This typical charitable activity went on for two years with very little interaction between the collaborators. The behavior fit into the resource dependence theory because the cost was low to Timberland, whereas the donation was welcome and appreciated by City Year, but was not critical. Similar low level engagements between nonprofits and companies are common and often long standing. However, many engagements including City Year and Timberland's evolve to the next relationship stage

because their interactions and dialogue can enable them to discover mission overlap (Austin, 2000b).

Stage 2: Transactional. The transactional stage is characterized as mutually beneficial relationships that have two-way benefit flows consistently identified and sought (Austin, 2000a). This stage is dominated by specific value transactions between the two parties through the identification of overlapping missions and a compatibility of values. The exchanges of resources through activities such as service contracts cause related marketing and co-sponsored events (Patterson, 2005). There is more involvement by each partner, and the level of interaction is intensified compared to the philanthropic stage.

The overlapping missions of City Year and Timberland were discovered as Timberland's Chief Executive Officer was developing a new corporate strategy that added the element of "beliefs" to the theme of their boots to the prevailing theme of "boots and brand." This dimension held that the company should make a positive difference in the society at large, and the corporate culture should foster involvement in confronting and solving problems within and outside of the company. City Year had a similar belief in bettering society, and its organizational mission encompassed the promotion of civic engagement (Austin, 2000a). As is typical of this stage of collaboration, City Year and Timberland increased their interactions and mutual resource flows. Timberland increased their financial contributions to support City Year's entire uniforms and, thus, helped City Year increase their visibility. The uniforms helped Timberland publicize the whole line of apparel and its commitment to nonprofit organizations. City Year began organizing community activities in which Timberland employees participated that supported the

company's commitment to team building, leadership development, interdepartmental relationships, and project management (Austin, 2000a).

Stage 3: Integrative. Collaboration in the integrative stage is characterized by collective action and organizational integration. Austin (2000b) suggests that relatively few organizations have been able to achieve this stage. In this phase, the relations are such that top leadership is involved, the strategic value is seen as important, and the collaboration is more formal, which is often seen as a highly integrated joint venture (Patterson, 2005). In this stage the partners reach new levels of integration of their missions, organizations, and activities. For example, within the City Year and Timberland collaboration in the second stage, Timberland employees were allowed to spend an allotted amount of paid time helping City Year with projects. In the third stage the time spent helping City Year was seen as part of their jobs. This was no different than employees assisting one of their manufacturing plants (Austin, 2000a). Another important dimension of the integration is that each partner has imprinted the other's organizational culture.

The collaboration continuum component of Austin's framework is the basis for developing the research question with respect to the key factors and stages of collaboration for the AMTEC college/industry partnerships, as seen through Austin's research. Austin's framework allows the AMTEC partners to locate and categorize relationships at any point along the collaboration continuum (Patterson, 2005). This allows them to see what type of relationship they have established, how it is evolving, and what directions they want it to go (Austin, 2000b). This is the basis for the two research questions with respect to perceptions between the partners of the stages of

collaboration in terms of strengths and value, and the recommendations for strengthening the collaborations based on factors and framework in the study.

Collaboration value construct. The important purpose of this study is to advance the knowledge and understanding for respecting the dynamics of college-industry collaboration (Patterson, 2005). Every relationship involves an exchange of value between the participants (Austin, 2000a). The second component of Austin's model is at the heart of partnership dynamics by applying four dimensions of construct, value definition, value creation, balance, and renewal during the collaboration. A critical question collaborators should ask is represented in the question asking the partners to rate the collaborations value.

The following represents a brief summary of the elements of the Collaboration Value Construct:

Value definition. Inherent in successful collaborations is the benefits that accrue to the respective organizations (Patterson, 2005). The more specific that one can set forth the expected benefits to each partner, the greater value the collaboration will have (Austin, 2000a). In the value definition process, partners identify the multiple possible benefits and their worth. For nonprofit organizations, Austin's research identifies benefits that include financial resources, services or goods, access to other corporations, technology and expertise, new perspectives, and greater name recognition. Austin's research identifies corporate benefits as enhanced reputation and image, improved employee morale, recruiting, retention, and skill development; enrichment of corporate values and culture; increased consumer patronage and investor appreciation; and technology testing and development. Because there are multiple sources of defining

value, these are clearly seen as critical, as described in Austin's study of the collaboration between the United Negro College Fund and Merck (Austin, 2000a). Because the value is based on the collaborative partners, benefits can be expressed both quantitatively and qualitatively. However, whatever the benefit indicators, they must be deemed useful and convincing to the relevant stakeholders. Because the collaboration is usually formed out of a joint concern, the value definition is related to the mission of the nonprofit that is of particular interest to the for-profit partner (Austin, 2000a).

Value creation. Value creation involves scrutinizing each organization's resources and capabilities to determine how they can create value. Austin (2000b) traces the development of value creation through three phases: generic resource transfer, core competencies exchange, and joint value creation. In the case of generic resource transfer, the nature of the transfer involves each party's benefiting from the resources of the other. An example includes how Timberland gave City Year funds, and City Year supplied community services, both lending credibility and image enhancement to Timberland. Core competencies exchange utilizes each institution's capability to generate benefits stemming from resources common to many similar organizations. Finally, joint value creation focuses on joint products or services unique to the collaboration and derived from the synergy of the two organizations. The reasons collaborations need renewal include changing circumstances of partners, complacency, and other factors that may require a revisiting of the original values and the need to seek out additional activities (Patterson, 2005). There is a need to keep innovation as a dynamic part of the relationship and, thus, give rise to new value-added activities (Austin, 2000a).

Value balance. Austin (2000a) states that strong and enduring collaborations have a balanced exchange of value in the collaboration construct. Past participants of Austin's study have commented that the collaboration is not sustainable over time if an imbalance exists because it erodes the dominant partner's motivation. Austin cites the resource dependency theory that explains how organizations lose power when they depend too heavily on others as resource providers (Patterson, 2005). The most effective collaborations are attained when each partner is actively seeking to find ways to advance the other's agenda (Austin, 2000a).

Value renewal. As collaborations evolve, circumstances change such as in partners, complacency, and other factors. These circumstances require a revisiting of the original values and the need to seek out additional activities to renew the collaboration. It is important that innovation remains a dynamic part of the relationship and gives rise to new value-added activities (Austin, 2000a).

Alliance drivers. Alliance drivers present findings regarding the nature and functioning of an alliance. Austin's research identified four alliance drivers that appear to be factors contributing significantly to the strength of the collaboration: alignment of strategy, mission, and values; personal connection and relationships; value generation and shared visioning; and continual learning (Austin, 2000a).

Strategy, mission, and values alignment. The partnership purpose should be aligned in each organization's strategy and mission. The greater the two missions mesh, the richer the collaboration (Austin, 2000a). If the value is the same across organizations, the chances are stronger that the partnership will be sustained (Patterson, 2005, p. 42).

Personal connection and relationships. The people involved in an alliance are important because they create and nurture partnerships. Social purpose partnerships are especially fueled by emotional connections to the partners. Literature on this topic emphasizes interpersonal relationships, but Austin's findings suggest that the connection with people and the purpose is important for cross sector alliances. Austin suggests that the mission connect is the motivational driver, and the personal relationships are the glue that keeps the organizations together (Austin, 2000a). The relationships are also important to the development of interorganizational trust, a critical element common to most collaboration.

Value generation and shared visioning. The fundamental viability of an alliance depends on its ability to generate value for its partners. Also, a shared vision accelerates the opportunities for greater collaboration between partners (Patterson, 2005).

Continual learning. In strong collaborations, the partners are engaged in continual learning about the partnering process and how that process can generate more value (Austin, 2000a). The partners need to continually look for new ways to engage more effectively. This study will utilize this part of Austin's model to address the research question: What is the difference of perception between the AMTEC industry and education partners' of the stages of collaboration in terms of strengths and value? The case study on the community college-automotive sector partnerships will study the mission, strategy and values alignment; personal connection and relationships; value generation, and shared visioning, and continual learning to determine how they help drive the partnership.

Alliance enablers. The alliance drivers propel the collaboration, but supporting the drivers is a factors that enables the effective management of the partnering relationship and process. These factors include focused attention, communication, organizational system, and mutual expectations and accountability (Austin, 2000b).

Focused attention. Intense and deep relationships require considerable attention that is high priority. The relationships need to have visibility and receive concentrated engagement by key decision makers (Austin, 2000a).

Communication. The partners need to have the means of communicating effectively, efficiently, and frequently to realize the benefits of an alliance (Austin, 2000a). Effective collaborations have multiple channels of communication that are both formal and informal. They also need to have open and honest communication that allows for constructive criticism, especially in the integrative stage of collaboration.

Organizational systems. Clarity of roles and responsibilities of the partnership management team is important to success. Roles and responsibilities should be clearly delineated (Patterson, 2005).

Mutual expectations and accountability. Clear expectations regarding the collaboration deliverables are important for the partners. This programmatic guidance fosters mutual accountability and motivates execution responsibility. Mutually high expectations promote high standards and value creation (Austin, 2000a).

This aspect of Austin's model of collaboration addresses factors that contribute to the partnership's effectiveness. The research questions derived from this component of the model will address the following: What are the key factors and stages of collaboration for the AMTEC college/industry partnerships as seen through the research of the WCFI

and Austin? What recommendations can be made for strengthening college/industry collaborations based on the collaborative factors and framework in the research? In addition alliance drivers and factors that move the partnership forward, the study also looks at a set of enablers (Patterson, 2005).

Table 3

Austin's Collaboration Continuum: Drivers and Enablers

DRIVERS	Philanthropic	Transactional	Integrative
Alignment of strategy, mission, values	Minimal fit required, beyond a shared interest in a particular issue area Gratefulness and charity orientation	Overlap in mission and values Partnering mindset Relationship as tactical tool	High mission mesh Shared values Relationship as strategic goal
Personal connection and relationships	Minimal personal connection to cause or people	Strong personal connection at leadership level Expanded personal relationships throughout the organization Increased understanding and trust	Expanded opportunities for direct employee involvement in relationship Deep personal relationships and trust across organization <i>We</i> mentality replaces <i>us</i> versus <i>them</i>
Value generation and shared vision	Generic resource transfer Typically unequal exchange of resources Minimal collaboration in defining activities Corporations respond to specific requests from nonprofits	Core competency transfer More equal exchange of resources Shared visioning at top of organization Projects of limited scope and risk	Joint value creation Value renewal Culture of each organization influenced by the other Projects identified and developed at all levels with the organization, with leadership support Broader scope of activities of strategic significance
Continual learning	Minimal or informal learning	More active learning about process and substance	Systematic learning and innovation Discovery ethic
ENABLERS	Philanthropic	Transactional	Integrative
Focused attention	Little top leadership attention	Top management engaged at start-up and periodically	Significant and ongoing attention from top management
Communication	Generally annually around grant process	More frequent communication between partners and externally	Explicit internal and external communication strategies and processes
Organizational systems	Corporate contact usually in community affairs in development	More people involved with responsibilities for specific collaboration activities	Partner relationship managers Organizational integration in execution, including shared resources
Mutual expectations and accountability	Use for stated purpose but minimal other performance expectations	Explicit performance expectations for targeted collaboration activities	High performance expectations and accountability for results Incentives for collaboration

Note. Taken from Austin, Strategic Collaboration Between Nonprofits and Business, 2000a

Table 3 summarizes the last two components of Austin's conceptual framework, alliance drivers, and alliance enablers.

Table 3 displays how Patterson (2005) summarizes the four components of Austin's model of collaboration into one single diagram that captures all aspects of the model (Patterson, 2005). The collaboration continuum and collaboration value construct provide an analytical framework for reviewing cross-sector collaboration, while the alliance drivers and enablers are the elements that drive and power the partnership. These factors determine the dynamics of the partnership. The final research question addresses recommendations for strengthening college/industry collaborations based on the collaborative factors and framework in the research. One goal is to learn about the key factors and stages of collaboration by applying Austin's model to this research. This application should provide practicality and applicability to other college/industry partnerships in the United States.

Strengths and weaknesses of Austin's model. The previous part of the Literature Review developed an understanding of ways the problem relates to existing knowledge of interorganizational collaboration. The theoretical background associated with interorganizational relationships provided insight into assessing the merits of various models of collaboration and their applicability to this study. This section of the Literature Review focuses on reasons Austin's model of collaboration was chosen for the study by examining its strengths and weaknesses.

Austin's model provides a cross-sector collaboration framework to conceptualize and analyze tools for systematically examining, developing, and managing alliances between non-profits and business collaborations (Austin, 2000a). A compelling case is provided for the value that results when interorganizational collaborations are effectively planned and led (Patterson, 2005). Building his descriptive model of collaboration on 15

case studies, Austin identifies common elements and key strategies that result in successful collaboration (Patterson, 2005). Austin's model can be used to help researchers and leaders understand the type of collaboration they utilize and what transformations would be required to move to a different point on the continuum (Austin, 2000a). Austin's partnership characteristics indicate ways the alliance drivers and enablers vary across the philanthropic, transactional, and integrative collaboration types and stages, and they are comprehensive in theory and practical in application (Patterson, 2005).

A major premise of this study is the lack of practical models for college leaders to help advance their knowledge and understanding of partnerships with business and industry (Patterson, 2005). Austin's model fills this void by providing a practical conceptualization that addresses key questions in respect to partnership development and sustainability. Austin's collaboration continuum provides a distinctive way to categorize types of collaboration and examine their evolution. The multifaceted approach of Austin's collaboration continuum provides a tool for the researcher to identify where an alliance falls within his stages. Austin's model provides a tool for the researcher to determine whether a particular configuration creates counterproductive inconsistencies or fits the particular circumstances of their alliance based on the functions and benefits from the collaboration (Austin, 2000a).

Austin's platform provides an opportunity for alliances to systematically discuss the type of relationship they utilize and how they would like the relationship to evolve. In this context, Austin's model uniquely helps to address the research questions that involve the key factors and stages of collaboration and the different perceptions of the

industry and education partners in terms of strengths and value. This application provides data regarding the key collaboration factors that can strengthen college/industry collaboration.

Austin's model builds on interorganizational relationship theory to help explain its theoretical underpinnings. Patterson (2005) states that, "Austin's explanation and links to interorganizational theory add great depth that gives his model a richness that other models simply do not provide" (p. 47). At the same time, Austin's model identifies critical questions that allow researchers to resolve issues regarding ways to categorize various types of collaboration and to systematically trace their evolution. As Austin (2000a) states, "none of the various, existing discipline-based theories adequately explain why interorganizational relationships arise, or how they develop and operate" (p. 70).

Austin's (2000a) research is validated by examining prior and current studies suggests that interorganizational theories have primarily focused on explaining motivations for collaborations and their ongoing dynamics. Among the theories reviewed are resource dependency (Castanias & Helfat, 2001); strategic choice (Oliver, 1990); stakeholder (Harrison & St. John, 1996); and institutional (Alter & Hage, 1993). Austin's model is supported by a rigorous foundation of field-based research in which his model has been examined and acknowledged as providing significant contributions to the field of interorganizational collaboration (Mizrahi & Rosenthal, 2001; Perry, 2000; Patterson, 2005; Chao & Muhittin, 2005). The model references and builds upon interorganizational relationship theory that places Austin among the leaders in the field (Patterson, 2005).

Austin states that further comparative research of cross-sector and same-sector collaborations are needed to shed additional insights into his research (Austin, 2000a). He suggests that applying his model to other alliance types would broaden the concept of interorganizational collaborations.

Despite the strength of Austin's (2000a) model and its applicability and practicality to the AMTEC collaboration within community colleges and the automotive industry sector partnerships, it contains some shortcomings. Austin does not take into account important external factors that impact collaboration. In the case of the AMTEC partnership, some important internal and external factors could significantly affect the viability of a partnership such as the political and social climate, financial resources, or the proper leadership to establish and complete goals and objectives. The role of internal and external factors, therefore, needs to be examined when dealing with industry-education partnerships (Patterson, 2005).

Mizrahi and Rosenthal (2001) point out that Austin's (2000a) use of in-depth case study to support his concepts only identifies successful collaboration and does not describe the challenges or pitfalls associated with partnerships. Mizrahi suggests that Austin's analysis would have been better balanced if it devoted a separate chapter to identifying challenges and suggested problem-solving techniques when partnerships are in trouble.

Mizrahi and Rosenthal (2001) also point out that Austin (2000a) completely ignored the role of government institutions as partners, such as higher education, even though his advice is applicable. In the case of the AMTEC partnership, the National Science Foundation Advanced Technological Education funded through the United States

government is an important determinant for success. Patterson (2005) suggests a refinement to Austin's model that includes the role of government incentives as an alliance driver when referring to industry-education partnerships. Mizrahi and Rosenthal point out that all of Austin's 15 studies involve one-on-one partnerships between business and non-profits, yet, for most non-profits, multi-party collaboration is the norm. Patterson suggests that Austin could have enriched his study by including references to multi-party collaborators.

A major assumption of Austin's (2000a) collaboration continuum is the value and importance of moving along the three stages of the continuum. However, he maintains that of his three stages of collaboration, "none is better than the other" (p.183). His whole thrust and the design of the framework focuses on moving along the continuum. Patterson (2005) suggests that some collaborations may be best accommodated in the philanthropic or transactional stage. Austin explains that integration requires an organization to invest and leaders to spend the required time determining its worth. Boundaries must be considered before establishing integration, and their understanding is essential between industry and public education collaborations since public education entities are funded through taxes and other public funds. In the case of industry-education partnerships, Patterson maintains that a well-managed transactional stage relationship may be the best place to position the collaboration. In terms of industry-education partnership for the National Science Foundation Center, similar to the AMTEC center, ethical guidelines must be followed. These guidelines provide a roadmap for the use of public funds with regard to the grant funds.

Based on the Literature Review a critical appraisal of the strengths and weaknesses of Austin's (2000a) model leads to identification of important internal and external factors that could significantly affect the viability of a partnership such as the political and social climate, financial resources, proper leadership to establish and complete goals and objectives, and the role of government funding targeted toward the development of partnerships. Additional external factors affecting the partnership are the management of divergent business and college organizational cultures to arrive at mutually understandable goals and ways of managing a partnership (Patterson, 2005).

The WCFI – The selected factors for this study. In 1992, the Wilder Foundation issued the publication, *Collaboration: What Makes it Work*, based on a review of research literature of factors that influence the success of collaboration. A second edition of this publication was issued in 2001 (Mattessich et al., 2008). The Foundation has identified 20 factors that influence the success of collaboration that can be assessed using the WCFI self-assessment instrument. These factors provide groups with data regarding areas of strengths and areas for improvement (Horton, Prain, & Thiele, 2009).

This section of the Literature Review will examine the main features of Wilder's Success Factors, discuss why this instrument is being applied to the case of partnership between AMTEC partners, and describe how it will be used with Austin's (2000a) Collaboration Continuum to address the research questions. Wilder's model of collaboration will determine why it is important an applicable model in the case of the AMTEC partnerships.

Wilder's 20 success factors. Much of the research suggests that Wilder's factors can apply to collaborative efforts that link business organizations with nonprofit

organizations (Mattessich et al., 2008). His 20 success factors are grouped into 6 categories: Environment, Membership Characteristics, Process and Structure, Communication, Purpose, and Resources.

Factors related to the environment. Environmental factors consist of geographic location and social context within which a collaborative group exists. The group may be able to influence or affect these elements in some way but has no control over them (Mattessich et al., 2008).

1. History of collaboration or cooperation in the community

A history of cooperation exists in the community and offers the potential collaborative partners an understanding of the roles and expectations required in collaboration, which will enable them to trust the process.

2. Collaborative group seen as a legitimate leader in the community

The collaborative group is perceived within the community as reliable and competent – at least related to the goals and activities it intends to accomplish.

3. Favorable political and social climate

Political leaders, opinion-makers, those who control resources and the general public support the mission of the collaborative group.

Factors related to membership characteristics. Membership characteristics consist of skills, attitudes, and opinions of the individuals in a collaborative group, as well as the culture and capacity of the organizations that form collaborative groups (Mattessich et al., 2008).

1. Mutual respect, understanding, and trust

Members of the collaborative group share an understanding and respect for each other and their respective organizations: how they operate, their cultural norms and values, their limitations, and their expectations.

2. Appropriate cross section of members

To the extent that they are needed, the collaborative group includes representatives from each segment of the community who will be affected by its activities.

3. Members see collaboration as in their self-interest

Collaborating partners believe they will benefit from their involvement in the collaboration and the advantages of membership will offset costs such as loss of autonomy and turf.

4. Ability to compromise

Collaborating partners are able to compromise, since the many decisions with a collaborative effort cannot accommodate the preferences of every member.

Factors related to process and structure. The term process and structure refers to the management, decision-making, and operational systems of a collaborative effort (Mattessich et al., 2008).

1. Members share a stake in both process and outcome

Members of a collaborative group feel “ownership” of both the way in which the group works and the results or products of its work.

2. Multiple layers of participation

Every level (upper management, middle management, operations) within each partner organization has at least some representation and ongoing involvement in the collaborative initiative.

3. Flexibility

The collaborative group remains open to varied ways of organizing itself and accomplishing its work.

4. Development of clear roles and policy guidelines

The collaborating partners clearly understand their roles, rights, and responsibilities, and they understand how to carry out those responsibilities.

5. Adaptability

The collaborative group has the ability to sustain itself in the midst of major changes in order to deal with changing conditions.

6. Appropriate pace of development

The structure, resources, and activities of the collaborative group change at each point throughout the initiative to meet the needs of the group without overwhelming its capacity.

Factors related to communication. Communications are the channels used by collaborative partners to send and receive information, inform members, and convey opinions to influence group actions (Mattessich et al., 2008).

1. Open and frequent communication

Collaborative group members interact often, update one another, openly discuss issues, and convey all necessary information to one another and to those outside the group.

2. Established informal relationships and communication links

In addition to formal channels of communication, members establish personal connections that produce a better, more informed, and cohesive group working on a common project.

Factors related to purpose. Purpose includes the reasons for the development of a collaborative effort, the result or vision the collaborative seeks, and the tasks or projects necessary to accomplish the vision that are typically defined by a need, crisis, or opportunity (Mattessich et al., 2008).

1. Concrete, attainable goals and objectives

Goals and objectives of the collaborative group are clear to all partners and can realistically be attained.

2. Shared vision

Collaborating partners have the same vision, with a clearly agreed-upon mission, objectives, and strategy. The shared vision may exist at the outset of the collaboration, or the partners may develop a vision as they work together.

3. Unique purpose

The mission and goals, or approach, of the collaborative group differ at least in part from the mission and goals, or approach, of the member organizations.

Factors related to resources. Resources include financial and human resources that are necessary to develop and sustain a collaborative group (Mattessich et al., 2008).

1. Sufficient funds, staff, materials, and time

The collaborative group has an adequate, consistent financial base, along with the staff and materials needed to support operations with sufficient time to achieve its goals and includes time to nurture the collaboration.

2. Skilled leadership

The individual who provides leadership for the collaborative group has organizing and interpersonal skills, and carries out the role with fairness. Because of these characteristics, the leader is granted respect by the collaborative partners.

Strengths and weaknesses of Wilder's success factors.

This Literature Review has identified through previous research a range of factors influencing successful collaboration. Perrault (2008) suggests that these studies have provided a depth of understanding for particular cases that have begun to uncover criteria and principles of collaboration at a conceptual level. Determining the requirements to build and sustain a successful collaboration is challenging because of the unique considerations and elements needed to achieve success (Perrault, McClelland, Austin, & Sieppert, 2011). Also, changes in membership, external context, organizational territorial tensions, and collaborative purpose can lead to changes in what is required to sustain collaboration. The WCFI provides the most elaborate list of success factors and provides clarity and differentiation of roles, creativity, flexibility, and informal communication necessary as collaborations intensify and formalize partnerships (Horton et al., 2009).

Patterson's (2005) research found that most authors identify "learning and capacity development" as central factors for successful partnerships. A key strength of the WCFI is that it was adapted for the use of assessing factors of collaboration (Austin & Hesselbein, 2002). Only the WCFI takes into consideration capacity development of

leaders (Horton et al., 2009). The common factors identified for proper collaborative leadership include trust and relationship building; sharing credit for the group's accomplishments; and commitment of time, sharing of decision making, adequate resources, and a dedication to the act of community (Perrault et al., 2011). The WCFI has been identified as the most rigorous and comprehensive list of factors that were developed through review of research literature and meta-analysis of factors for successful leadership for collaboration (Perrault et al., 2011).

The WCFI provides a broad model of collaboration, combining attention to both process and context. Further, the WCFI has been determined to be a tool to guide research in the area of human services, government, and other nonprofit fields (Horton et al., 2009). Townsend and Shelly (2008) validate WCFI using 572 employment security staff at various locations including community colleges in the United States. An additional study by Derose, Beatty, and Jackson (2004) analyzed 60 health care collaborators. This study included reliability measures that supported most of the WCFI constructs (Derose et al., 2004; Perrault, 2008). Although Mattessich and colleagues (2008) included a few community-university demonstrations in their development of the WCFI, they attempted to provide a broader focus on all "human services, government, and other nonprofit fields" (p. 63). Perrault reports that several of the general interorganizational community collaboration success factors are identified by community-university projects; however, community college-automotive industry interorganizational collaboration creates an added dimension for study.

Perrault (2008) explains that "people are expected to collaborate without the knowledge or skills required to carry out successful collaborations" (p. 67). Strength of

the WCFI is in the fact that it delineates an elaborate list of success factors providing clarity and differentiation of roles, creativity, flexibility, and informal communication necessary as collaborations intensify and formalize partnerships (Horton et al., 2009). Another strength is the consideration of capacity development of leaders (Horton et al., 2009). The common factors identified for proper collaborative leadership include trust, relationship building, sharing accomplishments, commitment, sharing of decision making, adequate resources, and a dedication to the act of community (Perrault et al., 2011). Several factors have been found to be common across most studies of collaboration (Einbinder, Robertson, Garcia, Vuckovic, & Patti, 2000); and the possible impact phases of the group could be more adequately considered (Perrault, 2008). Even though the WCFI was adapted and used in Austin's (2000a) theory of collaboration stages (Austin & Hesselbein, 2002), it does not address the stages of collaboration needed to provide researchers with information to fill conceptual and methodological gaps in the difference between factors of collaboration and Austin's research.

Conclusions

The overall conceptual model on which this study is grounded draws from several theoretical and research resources. The Literature Review brings together existing knowledge on interorganizational collaboration. The importance of the collaboration continuum has been examined along with the success factors that contribute to collaboration. Interorganizational relationship theories were examined individually and each contributed to Austin's (2000a) model. His model is unique in that it provides a roadmap to measure and strengthen collaboration along a continuum, and it provides an opportunity for alliances to systematically discuss the type of relationship they have and

how they would like it to evolve. However, despite the strength of Austin's model and its applicability and practicality to the AMTEC collaboration, some shortcomings are present. Austin does not take into account important success factors that impact collaboration. In the case of the AMTEC partnership, some important factors could significantly affect the viability of a partnership. The role of success factors, therefore, is something to be examined when dealing with industry-education partnerships (Patterson, 2005). However, Austin adapted the WCFI for use in determining factors that contribute to his stages of collaboration (Austin & Hesselbein, 2002). Therefore, this study uses the WCFI to measure the key factors identified as weaknesses in Austin's value construction and alliance drivers and enablers. WCFI accounts for important success factors that impact collaboration. In the AMTEC partnership, some important internal and external factors could significantly affect the perceptions and viability of partnership.

Austin's (2000a) model uniquely addresses the research questions on the key factors and stages of collaboration and the different perceptions of the industry and education partners in terms of strengths and value. The WCFI provides data regarding success factors that have led to the collaboration and strengthen college/industry collaboration.

Based on the Literature Review, this researcher will use Austin's (2000a) model as a lens to study what can be learned about the dynamics of the National Center of Excellence AMTEC that includes community colleges and their automotive industry partners. The WCFI will be utilized to measure factors that account for progression. Figure 4 summarizes the conceptual overview of the study framework.

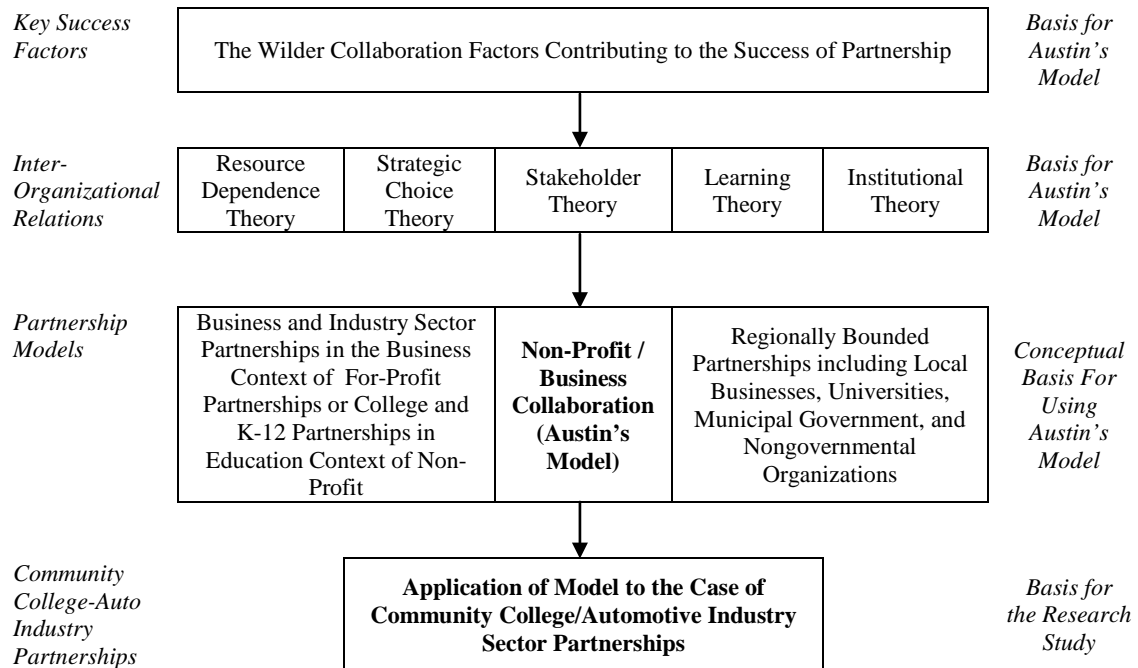


Figure 4. Conceptual overview of study framework

CHAPTER 3: RESEARCH DESIGN AND METHODOLOGY

This chapter outlines how the researcher intends to operationalize the proposed research questions. The objective was to learn about the dynamics of college-industry partnerships through the case of a National Center of Excellence in AMTEC that includes community colleges and several large automotive manufacturers and suppliers.

The Choice of Case Study

The case study approach was chosen as the best strategy to address what could be learned about the evolution of AMTEC community college-automotive industry partnerships. Yin (2009) described case study as a method used in many situations to contribute to knowledge of individual, group, and organizational social, political, and related phenomena. In all of these situations, the distinctive need for case studies arises out of the desire to understand complex social phenomena.

the case study approach was chosen because this research was based upon strong grounding in related literature and prior theory-based research. This case was framed with the context of prior theory and will extend that theory for future research.

Methodology Framework

James Austin's (2000a) theoretical model of collaboration was used, as it provided a promising framework in which to view college-industry interorganizational collaboration and a continuum of stages in collaborative relationships, from philanthropic to transactional to integrative. The study also used the WCFI, a set of success factors that influences the collaborative process.

In brief, the following approach was taken to address the key research questions in terms of gathering, analyzing, and interpreting the data.

1. What are the key factors and stages of collaboration for the AMTEC college/industry partnerships as seen through the research of WCFI and Austin Collaboration Continuum?

The researcher administered an electronic survey instrument that required community college and automotive industry partners to reflect upon their partnership and rate on a Likert scale perceived factors of collaboration (Wilder's Collaboration Factors) and stages (Austin's Collaboration Continuum).

Section 1 (Austin's collaboration continuum). Austin (2000b) presents 10 categories of strategic collaboration to assess partnership: Collaboration mindset, strategic alignment, collaboration value, resource exchange, contextual learning, personal connection, progress communication, focused attention, mutual expectations and accountability, and level of engagement to measure progression along the continuum (Austin & Hesselbein, 2002). Movement along the collaboration continuum generally resulted from deliberate decisions by the educational organization and the business to modify the scope of their relationship. AMTEC partners independently rated their perception of the stage of their partnership.

Section 2 (Wilder's collaboration factors). Wilders Collaboration Factors Inventory contains a list of 20 collaboration success factors. After reading the brief description for each of these factors, AMTEC partners reflected on how collaboration functioned. Participants rated their collaboration for each factor using a scale of 1 to 5. The researcher added the scores to determine how the collaboration operated. This section identifies key factors that impacted the strength of the college/industry partnerships.

Research Questions

1. What was the difference of perception between the AMTEC industry and education partners of the stages of collaboration in terms of strengths (Collaboration Continuum) and value (Wilder's Collaboration Factors)? Which of the factors had the strongest relationship to Austin's collaboration stage? The ratings of the strengths surveys determined which partnerships had the greatest perceived strengths of collaboration. Based on perceived strengths, the researcher analyzed the ratings of perceived values to determine which values correlated to perceived strengths of collaboration.

2. What recommendations could be made for strengthening college/industry collaborations based on the collaborative factors and framework in the research? Based upon the results of the perceived strengths and values correlation, the researcher identified the strengths and values present in successful AMTEC collaborative partnerships and the values that contributed to stage progression along Austin's collaboration continuum. These results were analyzed to provide recommendations through comparisons of values present in successful collaborations and those that must be addressed for partnerships to progress along Austin's (2000a) continuum. This analysis allowed partners to address areas of weakness to move their partnership further along Austin's continuum.

Data Generation and Sources

This section examines the process for obtaining survey results and permission requirements. It concludes with a summary of the collection procedures used for the data generation.

Data source. The participants were AMTEC community college partners and industry partners that have signed Memoranda of Agreement with the AMTEC Center as members of the AMTEC Leadership Team (ALT). These individuals made a commitment to the Center to work toward the goals of the Center. From this group of 12 community college partners and their respective local industry partner, all were invited to participate. Of those, seven partnerships agreed to participate in the survey, and three agreed to participate in recorded telephone interviews by signing the approved Western Kentucky University informed consent form.

Permissions obtained. To obtain informed consent, the researcher educated the subjects to ensure that they reached an informed decision about whether to participate in the study. The researcher advised the subjects that their informed consent must be given freely, without coercion, and based on a clear understanding of what participation involved. Participants were continually educated about the study from the initial contact through the duration of their participation. The consent discussion began two full weeks in advance of the initiation of the research to allow subjects time to reflect on benefits and risks of participation.

Procedures. Subjects were provided general information about the research via an email communication with an attached copy of the informed consent. A reminder was sent after three business days to ask for their reply to the request if they agreed to participate in the research within five business days. After the five days expired, the researcher met privately with each subject to review details using the informed consent document as a guide. The subjects were given an additional five business days to reflect on the informed consent. The subjects who agreed to participate were given user names

and password for a secure online survey. The electronic survey instrument required that they reflect upon their partnership and rate on a Likert scale the research-based collaboration key factors and stages they believed to be evident or present in their AMTEC industry education collaborative and that influenced their collaboration process. Two weeks after the survey closed telephone interviews were recorded for those that agreed to participate.

Data Analysis

While the preceding section outlined how the case study data was gathered, this section focuses on managing and analyzing the data.

Data analysis procedure

The process was launched to gain insight into partnership' dynamics through a review of previous studies of nonprofit-profit partnerships and research on interorganizational relationship theory and factors that lead to collaboration. The goal was to establish a foundation of interorganizational collaboration focused on AMTEC community college and automotive industry partners. The literature review encompassed three models of collaboration as well as Austin's (2000a) model, which was ultimately as the theory to be tested. From that model, 10 characteristics emerged that distinguished the stages of his collaboration continuum: collaboration mindset, strategic alignment, collaboration value, resource exchange, contextual learning, personal connection, progress communication, focused attention, mutual expectations and accountability, and level of engagement. The researcher also studied Austin's drivers of alignment of strategy, mission and values, personal connection and relationships, value generation and shared visioning, continual learning, enablers, focused attention, communication,

organizational systems, and mutual expectations and accountability. It was found that Austin adapted the WCFI factors to determine drivers and enablers contributing to his stages of collaboration (Austin & Hesselbein, 2002). Therefore, the researcher used the WCFI to measure the key factors that impact collaboration.

Data Identification and Description

The survey instrument was developed through Survey Monkey software that provided data that was transported to Microsoft Excel for a comparative analysis. The researcher established a unique ID number for each participant. The establishment of this database launched the process of extracting empirical data and matching the categories drawn from Austin's model. This process was accomplished in three phases related to the three research questions, namely, (1) rating of perceived stages of the partnership evolution and the factors that contributed to the success of the partnerships; (2) identified and correlated perceived values to determine which correlated to perceived strengths of collaboration; and (3) recommendations for strengthening collaborations through comparisons of strong collaborative partner strengths and values to weaker partners to provide a road map of progression along Austin's continuum.

The Study's Limitations

The case study approach acknowledged the inherent limitations of this type of research. Yin (2009) described case study as a method used in many situations to contribute to the knowledge of individual, group, and organizational social, political, and related phenomena. In all situations, the distinctive need for case studies arose out of the desire to understand complex social phenomena. However, because case studies are more likely to be contemporary descriptors of recent events (Eisenhardt, 1989) and have

a multiplicity of variables, generalizations that emerge from one case have limited application in others (Patterson, 2005). For example, the present case cannot define for other community colleges an explicit program for approaching partnerships and collaborations with industry sectors. However, while this case was specific to community colleges and the automotive industry partnerships, it may provide opportunities for advancing knowledge and research in college-industry partnerships and the conceptual framework, as well as experience to the findings using a testable theory (Eisenhardt, 1989).

In choosing issues on which to base the study, the researcher accentuated the dynamics of partnership development rather than potential themes such as measuring or demonstrating the benefits of partnerships. The researcher did not study public policy issues relating to partnership development, except their effect on this particular partnership.

The researcher operated under the assumption that industry-education partnerships are increasingly important in the current economic and educational policy climate. The imperative is to understand the knowledge and be able to manage their dynamics (Patterson, 2005). Therefore, the study did not focus on demonstrating the benefits of partnership but, instead, focused on exploring the factors that contributed to successful partnerships and the stages of collaboration continuum they might experience. The target audience was those interested in cross-sector collaboration between colleges and industry.

A qualitative research design usually poses difficulty when participants are interviewed through a formal survey process. Therefore, it was important for this survey to use survey instruments that had been sample tested.

Finally, the researcher acknowledged the potential for interpreter bias because of a personal role in the partnership activities. A subjective interest in the entire topic of partnerships clearly underlies this study. To ensure ease of response, each partner organization rated their perceptions of factors and stages of collaboration through electronic survey. Also, it was in the researcher's best interest to document each partner's perceptions to understand the factors necessary to progress along the collaboration continuum. To assure validity of the research, the researcher followed a triangulation methodology that used multiple sources of evidence, both the Austin Collaboration Continuum and the WCFL.

CHAPTER 4: ANALYSIS OF DATA

This chapter provides an analysis of the data for seven of the AMTEC local partnerships to determine stages and factors that led to or strengthened their collaboration. The analysis of AMTEC's local partnerships provided knowledge about collaboration and its evolution and revealed important phenomenon that merited further study. This research provided information for each of the local partnerships by identifying strategies to move along a continuum of stages of collaboration and the key factors that impacted local partnership evolution.

Descriptive Characteristics of Respondents

The research respondents were local community college and automotive industry partners that are members of the AMTEC National Center of Excellence. The survey instrument was administered to seven of the local community college partners and their seven local automotive manufacturing partners to analyze their stages and factors of collaboration rated on a Likert scale. The findings revealed perceived stages of collaboration and also the differences in perceptions between the local partners. The research reported the findings of perceived factors that led to collaboration for each participant, and perceived differences for each factor. Results of the WCFI and telephone interviews further validated the findings.

Organization of Data Analysis

There were 14 participants in the study, one industry and one college partner from seven AMTEC local partnerships. Participants completed a Likert scale survey using James C. Austin's (2000a) research-based 10 categories of Collaboration Continuum that

indicated perceived stages of collaboration. The WCFI, a research-based factor inventory that included 21 factors influencing the success of collaboration also was utilized. The findings reported each participant's perceived stage of collaboration including differences in local partners' perceptions of stage. Each community college and industry participant completed a survey without input from their local partner.

The data findings were systematically reported for each of Austin's Collaboration Continuum categories for the 14 respondents within the seven local partnerships. As shown in Table 4,, the local partnerships were identified by using Partnerships A through G titles to protect the identity of the participants. The participants were grouped together, and each was identified by sector, either college or industry, to show differences in perceptions. The perceived stages are reflected to the right of each participant and were documented by X's for each.

Table 4
Sample of Austin's "Collaboration Mindset" Stages of Collaboration

Local AMTEC Partnerships	College or Industry Sector	Stage 1 - Beginning and grateful for the collaboration, looking for ways to work together	Between Stage 1 and Stage 2	Stage 2 - Have built & understanding & trust levels & making progress toward true partnering mindset	Between Stage 2 and Stage 3	Stage 3 - Clearly developed a "we" mentality
Partnership A	College		X			
	Industry	X				
Partnership B	College				X	
	Industry					X
Partnership C	College			X		
	Industry					X
Partnership D	College			X		
	Industry			X		
Partnership E	College				X	
	Industry				X	
Partnership F	College					X
	Industry			X		
Partnership G	College			X		
	Industry	X				

The research findings were organized to report the participant perceptions for each of Austin's Collaboration Continuum categories: (a) collaboration mindset, (b) strategic alignment, (c) collaboration value, (d) resource exchange, (e) contextual learning, (f) personal connection, (g) progress communication, (h) focused attention, (i) mutual expectations and accountability, and (j) level of engagement. Austin's three stages of collaboration are philanthropic, transitional, and integrated.

Austin's (2000b) stages are not discrete as collaboration transitions from one state to another. As shown in Table 5, the researcher used a 5-point Likert scale to allow the participants to rate their perceived transition from one stage to another. This allowed identification of the movement among the three stages by using a 5-point scale, thus participants rated their perceived stage of collaboration to be somewhere within Austin's stages.

Table 5
Sample Survey Instrument Rating Scale

49. Reflecting upon your relationship with your AMTEC partner, rate the stage you perceive your collaboration to be regarding the PROGRESS COMMUNICATION framework category. Remember your AMTEC partner will also be rating your collaboration stage	
Stage 1	Project progress is typically communicated via paper through status reports.
Stage 2	We are beyond Stage 1 but not yet at Stage 3
Stage 3	We have more frequent communication between partners but the communication is mostly external to each other.
Stage 4	We are beyond Stage 3 but not yet at Stage 5
Stage 5	We have developed explicit internal and external communication strategies.

The research findings revealed differences of perceptions between each local community college's partners and that of their automotive manufacturing partner. A

difference of more than one measure was found to be significant for the study and required further analysis.

After reporting findings of Austin's Collaboration Continuum category stages, the researcher utilized the WCFI to indicate each partner's perceptions of factor strength ratings that led to collaboration. Wilder identified 20 factors that lead to successful collaboration:

1. History of collaboration or cooperation in the community
2. Collaborative group seen as a legitimate leader in the community
3. Favorable political and social climate
4. Mutual respect, understanding, and trust
5. Appropriate cross section of members
6. Members see collaboration as in their self-interest
7. Ability to compromise
8. Members share a stake in both process and outcome
9. Multiple layers of participation
10. Flexibility
11. Development of clear roles and policy guidelines
12. Adaptability
13. Appropriate pace of development
14. Open and frequent communication
15. Established informal relationships and communication links
16. Concrete, attainable goals and objectives
17. Shared vision

18. Unique purpose

19. Sufficient funds, staff, materials, and time

20. Skilled leadership

The results were organized using WCFI to report the findings for each local partnership. Differences of perception between each local community college and the respective automotive manufacturing partner were noted. The WCFI states that a difference in perception of two or more is significant and requires further analysis (Mattessich et al., 2008).

Data Findings for Austin's Collaboration Continuum

The research first reported findings of Austin's Collaboration Continuum categories for each participant and perceived differences of stage for local partners. In addition, findings were reported on perceived factor strength ratings that led to collaboration for each participant and perceived differences in factor strength ratings for local partners using results of WCFI. To triangulate the study, follow-up telephone interviews were administered that further validated participant responses to WCFI and themes of strong collaboration.

Austin's collaboration mindset findings. Collaborations go through a process to overcome attitudes that may be resistant to collaboration. This involves determining the personal chemistry of the participants and ensuring their competence and of good character. The partners also must exhibit a willingness to invest time in an educational and assessment process to ensure compatibility and potential value of the collaboration (Austin, 2000b).

Participant perceptions of Austin's (2000b) collaboration mindset stage of collaboration are shown in Table 6. The findings revealed that each has begun the process of collaboration and demonstrated that most agreed with their position along the collaboration continuum.

Table 6
Austin's Collaboration Mindset Findings

Local AMTEC Partnerships	College or Industry Sector	Stage 1 - Beginning and grateful for the collaboration, looking for ways to work together	Between Stage 1 and Stage 2	Stage 2 - Have built & understanding & trust levels & making progress toward true partnering mindset	Between Stage 2 and Stage 3	Stage 3 - Clearly developed a "we" mentality
Partnership A	College		X			
	Industry	X				
Partnership B	College				X	
	Industry					X
Partnership C	College			X		
	Industry					X
Partnership D	College			X		
	Industry			X		
Partnership E	College				X	
	Industry				X	
Partnership F	College					X
	Industry			X		
Partnership G	College			X		
	Industry	X				

The findings for Partnership A illustrated that both partners agreed they have begun their partnership, were grateful for the collaboration, and were still seeking ways they might work together. A difference in perception existed in the fact that the college partner believed the local partnership had transitioned beyond the philanthropic stage; however, their local industry partner perceived the partnership had not yet moved past stage 1. This was not a significant disagreement for Partnership A, since the difference was less than one complete stage.

Partnership B showed the most advanced stages of collaboration. The college partner perceived their stage of collaboration to be beyond stage 2, the integrated stage of collaboration. The industry partner perceived they had reached stage 3. A significant difference was not found in perceived stage of collaboration, as it was less than one complete stage. The findings suggested that this partnership had built understanding and trust levels and was making good progress toward what Austin (2000b) calls a true “partnering” mindset with a “we” mentality, the integrated stage of collaboration.

The Partnership C college partners believed they had attained stage 2, the transition stage. They perceived their partnership had built understanding and trust levels and was making good progress toward a true “partnering” mindset. However, the industry partner perceived they had already achieved the integrated stage 3, in which a “we” mentality was present. Both the college and industry partners perceived their partnership to be strong, but the findings showed a significant difference of one complete stage of collaboration.

The Partnership D college and industry partners were in agreement that they had achieved Austin’s (2000b) stage 2 of collaboration, the transitional stage. The partners had built understanding and trust levels and were making good progress toward a true partnering mindset.

Partnership E had moved to an advanced stage of collaboration. Both partners perceived their stage of collaboration to be beyond Austin’s (2000b) stage 2 but not yet to stage 3.

The Partnership F participants revealed a significant difference in perceived stage of collaboration. While the college partner perceived to be at stage 3, the industry partner

perceived to be at stage 2, making progress toward a partnering mindset but had not reaching stage 3.

Partnership G also showed significant difference in perceived stage of collaboration. The college partner perceived they were at Austin's (2000b) stage 2; the industry partner perceived to be at stage 1.

Austin's strategic alignment findings. Austin's (2000b) research states that, the more central the alliance to each partner's mission and strategy, the stronger the partnership. Strategic alignment creates an overlapping of purpose that motivates both organizations to invest heavily in the relationship. The greater the mission mesh, the richer the collaboration (Austin, 2000a).

Table 7 illustrates participant perceptions for Austin's (2000b) strategic alignment stage of collaboration. The findings indicate the partners perceived a shared interest in working together toward the goals of AMTEC, yet they may have had different goals for their strategic alignment. The findings also show that most of the partnerships agreed on their perceived stage within the strategic alignment collaboration continuum.

Table 7
Austin's Strategic Alignment Findings

Local AMTEC Partnerships	College or Industry Sector	Philanthropic Stage 1 - Share interest in AMTEC but different goals for alignment	Between Stage 1 and Stage 2	Transition Stage 2 - Overlap in mission & values	Between Stage 2 and Stage 3	Integrated Stage 3 - High "mission mesh" and shared vision
Partnership A	College		X			
	Industry	X				
Partnership B	College			X		
	Industry			X		
Partnership C	College			X		
	Industry					X
Partnership D	College			X		
	Industry			X		
Partnership E	College			X		
	Industry				X	
Partnership F	College					X
	Industry		X			
Partnership G	College		X			
	Industry	X				

The findings for Partnership A revealed the college partner's perceptions to be between stage 1 and 2 for the strategic alignment continuum. At this stage, an overlap in mission and values was found related to AMTEC. However, the industry partner perceived to be at stage 1, having a shared interest in the AMTEC work but different goals for the alignment.

The Partnership B college and industry partners shared the perception of their position within Austin's (2000b) strategic alignment stage of collaboration. Both perceived their partnership at stage 2.

The Partnership C partners showed movement along the strategic alignment stage of collaboration but had significant gaps in perception of stage. The college partner perceived the stage to be at stage 2, the transition stage. They perceived an overlap in

mission and values as it related to AMTEC. The industry partner perceived the strategic alignment stage was at 3, where the perception was a high “mission mesh” and shared values (Austin, 2000a).

Partnership D partners had a shared perception of where their collaboration fell within the strategic alignment stage of collaboration. Both perceived to be at stage 2, the transition stage.

Partnership E partners had a similar perception of their position within the strategic alignment stage of collaboration. The college partner perceived to be at 2, the transition stage. However, the industry partner believed the collaboration had moved past stage 2, but not yet to stage 3, which would indicate a high mission mesh.

The Partnership F partners showed significant differences of perception on their position within the strategic alignment collaboration continuum. The college partner perceived to be at stage 3, the integrated stage, with a high mission mesh. The industry partner perceived to be between stage 1 and 2. The partners had shared interest but had not yet developed an overlap in mission and values related to AMTEC.

The findings for Partnership G showed the college partner perceptions between stage 1 and 2 for the strategic alignment continuum. An overlap was found in mission and values related to AMTEC. However, the industry partner perceived to be at stage 1, with a shared an interest in AMTEC but different goals for alignment.

Austin’s collaboration value findings. Exchange of values between partners builds relationships that strengthen the collaboration (Austin, 2000a). Benefits for each must be evident to see value and build stronger relationships.

Perceptions of Austin's (2000b) collaboration value stage are shown in Table 8.

The findings indicate each had begun the process of collaboration. Partnership A findings showed the college partner's collaboration value to be between stages 1 and 2, in which they responded to specific requests from their partner but had not yet collaborated on other projects of limited scope and risk. The industry partner perceived the collaboration at stage 1, philanthropic, in which they responded to specific requests from their college partner.

Table 8
Austin's Collaboration Value Findings

Local AMTEC Partnerships	College or Industry Sector	Philanthropic Stage 1 - respond to specific requests from our partner	Between Stage 1 and Stage 2	Transition Stage 2 - Collaborate on projects of limited scope and risk	Between Stage 2 and Stage 3	Integrated Stage 3 - Broader scope of projects identified and developed at all levels with the organizations
Partnership A	College		X			
	Industry	X				
Partnership B	College				X	
	Industry				X	
Partnership C	College				X	
	Industry					X
Partnership D	College			X		
	Industry			X		
Partnership E	College				X	
	Industry				X	
Partnership F	College					X
	Industry			X		
Partnership G	College				X	
	Industry	X				

The Partnership B college and industry partners both perceived to be between stage 2 and 3. They were between the ability to collaborate on projects of limited scope and risk and the ability to collaborate on a broader scope of projects identified and developed at all levels within the organizations.

The Partnership C college partner perceived their collaboration value stage beyond a point of partnering on projects of limited scope and risk but not yet at a point in which a broader scope of projects had been identified and developed at all levels. However, the industry partner believed they had already reached a stage in which they identified broader projects within all levels of both organizations.

Partnership D college and industry partners both perceived their collaboration value stage at the transitional stage, where the partners collaborated on projects of limited scope. Partnership E college and industry partners perceived they had moved between stage 2 and 3, in which they worked together on projects of limited scope but had not yet reached a broader scope of projects identified and developed at all levels within their organizations.

Partnership F college and industry partners indicated a difference of one complete stage relative to the collaboration value continuum, which was significant. The college partner perceived to be at the integrated stage, stage 3 in which the partnership had a broader scope of projects identified and developed. The industry partner perceived to be at transition stage 2.

Partnership G also showed significant differences in perceptions of their collaboration value stage. The college partner's perceived stage was between 2 and 3. However, the industry partner perceived philanthropic stage 1, which was a significant difference.

Austin's resource exchange findings. Through the process of value creation, collaborative partners scrutinize their organization's resources and capabilities to create joint value (Austin, 2000b). Austin suggests that this process involves three phases:

generic resource transfer, core competencies, and joint value creation. The first is when the nature of the transfer involves both parties benefiting from the other's resources.

Core competencies exchange is when each organization uses the capability to generate benefits stemming from resources common to many organizations. Joint value creation is the development of products or services unique to the collaboration derived from the synergy of the two organizations (Patterson, 2005).

The participants' perceptions of Austin's resource exchange stage of collaboration are shown in Table 9. The findings indicate each partner had begun the process and their perceptions of resource exchange stage. Partnership A's findings showed that the college partner perceived their resource exchange stage to be at 1, in which an unequal exchange of resources existed. Partnership A's industry partner perceived the resource exchange was at the transitional stage, in which an equal exchange of resources existed. This was a significant difference in perception between partners.

Table 9
Austin's Resource Exchange Findings

Local AMTEC Partnerships	College or Industry Sector	Philanthropic Stage 1 - Unequal exchange of resources in our partnership	Between Stage 1 and Stage 2	Transition Stage 2 - Equal exchanges of resources in our partnership	Between Stage 2 and Stage 3	Integrated Stage 3 - A culture of joint value creation and mutually provide resources as needed
Partnership A	College	X				
	Industry			X		
Partnership B	College				X	
	Industry				X	
Partnership C	College				X	
	Industry					X
Partnership D	College			X		
	Industry			X		
Partnership E	College			X		
	Industry			X		
Partnership F	College				X	
	Industry			X		
Partnership G	College			X		
	Industry	X				

Both Partnership B college and industry partners perceived their stage between stage 2, the transitional stage, and stage 3, the integrated stage. At this stage, there was equal resource exchange, but the partners had not yet developed a culture of joint value creation and mutually provided resources as needed. The Partnership C college and industry partners perceived different stages, but the difference was not significant. The college partner believed the stage was between 2 and 3, with an equal exchange of resources, but a culture of joint value creation and mutually provided resources had not yet been developed. The industry partner perceived the stage to be at integrated, in which they had achieved a culture of joint value creation and mutual resource exchange.

The perceptions of the college partners and both of the industry partners for Partnerships D and E were the same - the transition stage, with an equal exchange of

resources. The resource exchange stages for Partnership F college and industry partners were different but not significant. The college partner perceived to be between stage 2 and 3, with equal resource exchange, but they had not yet developed a culture of joint value creation. The industry partner perceived to be stage 2, an equal exchange of resources.

Partnership G showed significant differences in perceived stage resource exchange collaboration. The college partner perceived to be at stage 2, the transition stage, or an equal exchange of resources. However, the industry partner perceived to be at stage 1, an unequal exchange of resources.

Austin's contextual learning findings. Strong partners engage in contextual learning about the partnering process and how to generate more value (Austin, 2000a). If the local AMTEC college and industry partners engaged in Austin's contextual learning process, they would find new ways to involve and strengthen their partnership to add more value to their collaboration.

Table 10 illustrates participant perceptions of Austin's (2000b) contextual learning stage of collaboration. The findings showed that Partnership A did not perceive a significant difference in the contextual learning stage of collaboration. The college partner believed to be between stage 1 and stage 2. Where they had moved past a point of minimum or informal learning but had not yet reached ongoing active learning. Their industry partner perceived the collaboration to be at stage 1, the philanthropic stage, in which there is minimal informal learning.

Table 10

Austin's Contextual Learning Findings

Local AMTEC Partnerships	College or Industry Sector	Philanthropic Stage 1 - Minimum or informal learning from each other	Between Stage 1 and Stage 2	Transition Stage 2 - Ongoing active learning about processes and of substance	Between Stage 2 and Stage 3	Integrated Stage 3 - We share & enjoy systematic learning that creates innovation
Partnership A	College		X			
	Industry	X				
Partnership B	College			X		
	Industry	X				
Partnership C	College			X		
	Industry				X	
Partnership D	College			X		
	Industry			X		
Partnership E	College					X
	Industry		X			
Partnership F	College				X	
	Industry			X		
Partnership G	College			X		
	Industry	X				

The Partnership B partners had significant differences in perceived stage for contextual learning. The college partner perceived the stage to be at the transition stage, with ongoing active learning, and the industry partner believed the collaboration to be at stage 1, the philanthropic stage, with minimal informal learning.

The Partnership C college partner perceived they were at the transition stage 2, and the industry partner believed their stage was between 2 and 3. They had passed the stage of ongoing active learning but had not reached stage 3 where they would share and enjoy systematic learning that creates innovation as part of their relationship.

The Partnership D college and industry partners perceived their contextual learning at stage 2. However, Partnership E's findings showed significant differences of perceived stage of collaboration. The Partnership E college partner perceived the

contextual learning stage was integrated stage 3, where the partners enjoyed systematic learning that created innovation as a part of their relationship. On the other hand, the industry partner perceived to be between stage 1 and stage 2, between minimal informal learning and ongoing active learning about processes of substance.

The Partnership F perceptions of stage for contextual learning were different but not significant. The college partner believed the stage was between 2 and 3. The industry partner perceived to be at stage 2, transition, in which they experienced ongoing active learning about processes of substance.

The Partnership G partners' perceptions of stage were significantly different. The college partner perceived to be stage 2, where ongoing active learning about processes of substance was experienced. The industry partner perceived to be at stage 1, in which minimal or informal learning from each other was found.

Austin's personal connection findings. The ability to create and nurture relationships is important to the existence of collaborations because emotional connections of partners increase the likelihood of sustainability of the partnership (Austin, 2000a). Austin's research found that the mission of the interorganizational collaboration is a motivational driver. However, personal relationships keep partnerships together because a level of trust has been developed (Austin, 2000b).

The participants' perceptions of Austin's (2000b) personal connection stage of collaboration are shown in Table 11. Austin's personal connection stage for Partnership A was in the early stages of development, and perceptions between the partners were not significant. The college partner perceived to be between stage 1 and stage 2, in which they were beyond having minimal personal connection but had not yet developed a strong

personal connection at the leadership level. The industry partner perceived to be at stage 1, with minimal personal connection.

Table 11

Austin's Personal Connection Findings

Local AMTEC Partnerships	College or Industry Sector	Philanthropic Stage 1 - Minimum personal connection with each other	Between Stage 1 and Stage 2	Transition Stage 2 - Strong personal connection at the leadership level	Between Stage 2 and Stage 3	Integrated Stage 3 - Deep personal relationship that go across both organizations
Partnership A	College		X			
	Industry	X				
Partnership B	College					X
	Industry					X
Partnership C	College				X	
	Industry				X	
Partnership D	College			X		
	Industry			X		
Partnership E	College			X		
	Industry			X		
Partnership F	College				X	
	Industry		X			
Partnership G	College			X		
	Industry	X				

Partnership B college and industry partners had no differences in perceived stage of collaboration. Both perceived their stage of collaboration to be at stage 3, in which the partners had developed a deep personal relationship that extended across both organizations. Both college and industry partners in Partnership C perceived their personal connection stage between 2 and 3, in which the partners had developed a strong personal connection at the leadership level but had not yet perceived it as a deep personal relationship that extended across both organizations.

Partnerships D and E were at the same perceived stage and also showed no difference in perception of stage between their respective partners. Both perceived their stage at stage 2, in which the partners had developed a strong personal connection at the

leadership level. Both Partnerships F and G had significant differences for perceived stages of Austin's (2000b) personal connection stage of collaboration. The Partnership F college partner perceived the stage between 2 and 3, in which partners had developed a strong personal connection at the leadership level but had not yet developed a deep relationship across both organizations. The industry partner perceived the partnership between stage 1 and 2, in which the partnership had progressed past minimum personal connection but had not yet developed a strong personal connection at the leadership level. The Partnership G college partner perceived their personal connection stage to be transitional, in which the strong personal connection had been developed at the leadership level. However, their industry partner perceived the personal connection stage to be philanthropic, in which there was minimum personal connection.

Austin's progress communication findings. Participants' perceptions of Austin's progress communication stage of collaboration are shown in Table 12. Most perceived stage of collaboration for progress communication was not of significant difference. The Partnership A college partner perceived the progress communication stage between 1 and 2, in which the partnership had moved past the typical communication of paper status reports but not yet to the stage where of frequent communication. Their industry partner's perceived stage was stage 1, in which progress communication typically occurred via paper status reports.

Table 12
Austin's Progress Communication Findings

Local AMTEC Partnerships	College or Industry Sector	Philanthropic Stage 1 - Project progress is typically communicated via paper through status reports	Between Stage 1 and Stage 2	Transition Stage 2 - More frequent communication between partners but the communication is mostly external to each other	Between Stage 2 and Stage 3	Integrated Stage 3 - Developed explicit internal and external communication strategies
Partnership A	College		X			
	Industry	X				
Partnership B	College				X	
	Industry			X		
Partnership C	College				X	
	Industry					X
Partnership D	College				X	
	Industry			X		
Partnership E	College			X		
	Industry				X	
Partnership F	College				X	
	Industry			X		
Partnership G	College			X		
	Industry	X				

Partnership B findings had no significant differences in perceived stage of collaboration. The college partner perceived the progress communication stage between 2 and 3, in which partners had evolved beyond frequent communication that was external to each other but had not yet developed explicit internal and external communication strategies. Their industry partner perceived the stage at 2, in which more frequent communication occurred between partners but was mostly external to each other.

Partnership C findings had no significant differences in perceived stage of collaboration. The college partner believed the stage to be between 2 and 3, in which partners are beyond having frequent external communication but have not yet developed explicit internal and external communication strategies. Their industry partner perceived

stage 3, in which they had developed explicit internal and external communication strategies.

Findings from Partnership D had no significant differences in perceived stage of collaboration. The college partner perceived the stage between 2 and 3, beyond having frequent external communication but not yet developed into explicit internal and external communication strategies. Their industry partner perceived the stage to be at 2, in which they had more frequent communication between partners but the communication was mostly external.

Partnership E findings revealed no significant differences in perceived stage of collaboration. The college partner believed the progress communication stage to be at 2, and the industry partner perceived the stage between 2 and 3, in which the partners were beyond having frequent external communication but had not yet developed explicit internal and external communication strategies.

Partnership F findings had no significant differences in perceived stage. The college partner perceived the stage between 2 and 3 and the industry partner perceived the stage at 2, in which more frequent communication occurred between partners, but it was mostly external. Partnership G's findings showed significant differences in perception. The college partner perceived stage 2, frequent communication that was mostly external, and the industry partner perceived stage 1, where project progress was typically communicated via paper status reports.

Austin's focused attention findings. Austin's (2000a) research found that intense and deep relationships require considerable attention, including visibility and

engagement by key decision makers. Focused attention propels collaboration and enables effective management of relationship and process.

The participants' perceptions of the focused attention stage of collaboration are shown in Table 13. Again, most of the partnerships revealed no significant difference in stage of collaboration. The Partnership A college partner perceived the stage for focused attention between 1 and 2, in which partners received top leadership attention but did not have top management engagement. Their industry partner perceived the stage at transitional stage 2, in which top management at both organizations was engaged at start-up and periodically.

Table 13
Austin's Focused Attention Findings

Local AMTEC Partnerships	College or Industry Sector	Philanthropic Stage 1 - There is little top leadership attention to our partnership	Between Stage 1 and Stage 2	Transition Stage 2 - Top management at both organizations are engaged at start-up and periodically	Between Stage 2 and Stage 3	Integrated Stage 3 - Significant and ongoing attention from top management at both organizations
Partnership A	College		X			
	Industry			X		
Partnership B	College					X
	Industry				X	
Partnership C	College		X			
	Industry			X		
Partnership D	College			X		
	Industry			X		
Partnership E	College			X		
	Industry		X			
Partnership F	College					X
	Industry			X		
Partnership G	College			X		
	Industry	X				

The Partnership B college partner's perceived stage was integrated stage 3, in which significant and ongoing attention from top management existed at both

organizations. The industry partner perceived the focused attention stage between the transition stage 2 and integrated stage 3, the stage at which top management at both organizations was engaged, but they had yet to develop significant and ongoing attention from top management at both organizations.

The Partnership C college partner's perceived stage was between philanthropic stage 1 and transition stage 2, in which attention from top leadership existed, but top management from both organizations had not yet engaged. Their industry partner perceived the stage at integrated stage 3, at which significant and ongoing attention occurred from top management at both organizations. Both the college and industry partners for Partnership D perceived their stage to be the same, at transition stage 2, in which top management from both organizations was engaged at start-up and periodically.

The Partnership E college partner's perceived stage for focused attention stage was transition stage 2, in which top management at both organizations was engaged. Their industry partner perceived the stage to be between transition stage 2 and integrated stage 3, in which both organizations were engaged but had not yet developed significant and ongoing attention from top management. The Partnership F college partner also perceived the stage to be between transition stage 2 and integrated stage 3. Their industry partner perceived the stage to be at transition stage 2, in which top management at both organizations was engaged at start-up and periodically.

The Partnership G college and industry partners' findings showed significant difference in the perceived stage of collaboration for the focused attention collaboration continuum. The college partner perceived the partners to be at transition stage 2, in which top management at both organizations was engaged. On the other hand, the

industry partner perceived it to be at the philanthropic stage 1, in which little top leadership attention to the partnership existed.

Austin's mutual expectations findings. Clear expectations are important for collaborations to provide a clear definition of deliverables and to foster mutual accountability, which, in turn, promotes high standards and values to motivate execution.

The participants' perceptions of the mutual expectations collaboration continuum are shown in Table 14. Most partnerships had no significant differences in stage of collaboration. The Partnership A college partner's perceived stage was between 1 and 2, in which partners supported the stated goals of AMTEC but not yet developed explicit performance expectations for targeted activities. The industry partner perceived the stage to be at 1, in which the industry partner had minimal other performance expectations.

Table 14
Austin's Mutual Expectations Findings

Local AMTEC Partnerships	College or Industry Sector	Philanthropic Stage 1 - The partnership supports the stated purpose of AMTEC but has minimal other performance expectations	Between Stage 1 and Stage 2	Transition Stage 2 - We have explicit performance expectations for targeted collaboration activities	Between Stage 2 and Stage 3	Integrated Stage 3 - High performance expectations and accountability for results
Partnership A	College		X			
	Industry	X				
Partnership B	College					X
	Industry					X
Partnership C	College				X	
	Industry			X		
Partnership D	College		X			
	Industry			X		
Partnership E	College				X	
	Industry			X		
Partnership F	College					X
	Industry		X			
Partnership G	College		X			
	Industry	X				

The Partnership B college and industry partners perceived their stage was integrated stage 3, in which high performance expectations and accountability for results existed. The Partnership C college partner perceived it to be between transition stage 2 and integrated stage 3, in which partners had explicit performance expectations but did not have accountability for results. Their industry partner perceived stage 2, in which explicit performance expectations existed. The Partnership D college partner perceived their stage to be between 1 and 2, whereas their industry partner perceived the partnership stage to be 2. At stage 2, the partnership had explicit performance expectations for the collaboration. The Partnership E college partner perceived their stage to be between 2 and 3, in which there were explicit performance expectations but none for accountability. Their industry partner perceived to be at stage 2, in which there were explicit performance expectations.

Partnership F showed significant difference in the perceived stage of collaboration. The college partner's perceived stage was 3, in which there were performance expectations and accountability for results. However, their industry partner perceived it to be between 1 and 2, in which they perceived support for the stated purpose and targeted activities but had not yet developed explicit performance expectations for targeted collaboration activities. The Partnership G college partner perceived their stage also to be between 1 and 2, and their industry partner perceived their stage to be 1.

Austin's level of engagement findings. Austin's (2000a) research suggests there are significant collaborative gains to be achieved by moving to a high level of engagement, yet the cost is also great.

The participants' perceptions of level of engagement stage of collaboration are shown in Table 15. Again, most of the partnerships had no significant differences in stage of collaboration, and there were significant levels of engagement for most of the partnerships for this continuum. Partnership A's college partner perceived their stage to be between 1 and 2, in which partners are increasing from a low level of engagement but do not yet perceive it to be moderate. Their industry partner perceived their stage to be 1, in which partner engagement is low. Both Partnership B college and industry partners perceived their stage to be 3, in which there was a high level of engagement that goes beyond the AMTEC grant. The Partnership C college partner perceived the stage to be between transition stage 2 and integrated stage 3, and their industry partner perceived their stage to be 3. The Partnership D showed significant differences in perception. The college partner perceived to have achieved stage 3, whereas the industry partner perceived to be at stage 2, in which there was moderate engagement on various projects. Both the college and industry partners for Partnership E perceived their level of engagement to be stage 3, in which I was high and goes beyond the AMTEC grant. The Partnership F college partner perceived their stage to be between 2 and 3, and their industry partner perceived their level of engagement to have achieved stage 3. Partnership G again showed significant difference in perceived stage of collaboration. The college partner perceived their stage of collaboration to be at 3, the highest level; and their industry partner perceived their stage to be at 1, the lowest level of engagement.

Table 15

Austin's Level of Engagement Findings

Local AMTEC Partnerships	College or Industry Sector	Philanthropic Stage 1 - Low level of engagement with our partner beyond the AMTEC grant	Between Stage 1 and Stage 2	Transition Stage 2 - Moderate level of engagement with our partner on various projects	Between Stage 2 and Stage 3	Integrated Stage 3 - High level of engagement with our partner that goes beyond the AMTEC grant
Partnership A	College		X			
	Industry	X				
Partnership B	College					X
	Industry					X
Partnership C	College				X	
	Industry					X
Partnership D	College					X
	Industry			X		
Partnership E	College					X
	Industry					X
Partnership F	College					X
	Industry				X	
Partnership G	College					X
	Industry	X				

Data Findings for WCFI

The research reports findings for each local partnership using WCFI and differences of perception between each local community college partner and their automotive manufacturing partner. The WCFI does not have normative standards that enable the researcher to construct definitive interpretations of numerical scores for the factors. Instead, scores on the inventory are used as a basis for analysis of collaborative initiatives (Mattessich et al., 2008).

Wilder suggests the following general rule to analyze the numbers:

- Scores of 4.0 or higher show a strength.
- Scores from 3.0 to 3.9 are borderline.
- Scores of 2.9 or lower reveal concern and should be addressed.

Factor ratings for partnership A. Wilder suggests that partnership mean scores of 4.0 or higher show strength of the collaboration (Mattessich et al., 2008). As shown in Table 16, the Partnership A college and industry partner findings show strength for the following factors:

1. History of collaboration or cooperation in the community
2. Favorable political and social climate
3. Members see collaboration as in their self-interest
4. Flexibility
5. Established informal relationships and communication links
6. Concrete, attainable goals and objectives
7. Unique purpose

Table 16
Wilder's Factors Ratings for Partnership A

Wilder's 20 Collaboration Factors	Partnership Sector		Partnership Mean Score
	College	Industry	
History of collaboration or cooperation in the community	4.0	4.0	4.0
Collaborative group seen as a legitimate leader in the community	4.5	3.0	3.8
Favorable political and social climate	4.5	4.0	4.3
Mutual respect, understanding, and trust	3.5	3.5	3.5
Appropriate cross section of members	4.0	3.0	3.5
Members see collaboration as in their self-interest	5.0	4.0	4.5
Ability to compromise	3.0	4.0	3.5
Members share a stake in both the process and outcome	4.3	3.3	3.8
Multiple layers of participation	4.0	3.0	3.5
Flexibility	4.5	4.0	4.3
Development of clear roles and policy guidelines	4.5	2.0	3.3
Adaptability	3.5	2.5	3.0
Appropriate pace of development	4.0	3.0	3.5
Open and frequent communication	3.3	3.7	3.5
Established informal relationships and communication links	4.0	4.0	4.0
Concrete, attainable goals and objectives	4.3	3.7	4.0
Shared vision	4.0	3.5	3.8
Unique purpose	5.0	4.5	4.8
Sufficient funds, staff, materials, and time	3.0	3.0	3.0
Skilled leadership	4.0	3.0	3.5

Of the factors that Partnership A perceived to be strengths, only one was not rated high enough by both partners to be considered strength. The concrete, attainable goals and objectives factor was rated as strength by the college partner, but the rating of the industry partner was borderline.

Wilder suggests that partnership mean scores of 3.0 to 3.9 are borderline within the collaboration (Mattessich et al., 2008). The Partnership A college and industry partner findings are borderline for the following factors:

1. Collaborative group seen as a legitimate leader in the community

2. Mutual respect, understanding, and trust
3. Appropriate cross section of members
4. Ability to compromise
5. Members share a stake in both the process and outcome
6. Multiple layers of participation
7. Development of clear roles and policy guidelines
8. Adaptability
9. Appropriate pace of development
10. Open and frequent communication
11. Shared vision
12. Sufficient funds, staff, materials, and time
13. Skilled leadership

Of the factors that Partnership A perceived to be borderline, two fell below the borderline into the concern category for the industry partner. The two that are of concern to the industry partner are (1) development of clear roles and policy guidelines and (2) adaptability.

The Partnership A industry partner gave four additional factors a 3.0 score, the lowest in the borderline category. The six additional factors that received low borderline scores are:

1. Collaborative group seen as a legitimate leader in the community
2. Appropriate cross section of members
3. Multiple layers of participation
4. Appropriate pace of development

5. Sufficient funds, staff, and time
6. Skilled leadership

Factor ratings for partnership B. Wilder suggests that partnership mean scores of 4.0 or higher show strength of the collaboration (Mattessich et al., 2008). As shown in Table 17, the Partnership B college and industry partner findings show strength for the following factors:

1. History of collaboration or cooperation in the community
2. Collaborative group seen as a legitimate leader in the community
3. Mutual respect, understanding, and trust
4. Appropriate cross section of members
5. Members see collaboration as in their self-interest
6. Ability to compromise
7. Members share a stake in both the process and outcome
8. Flexibility
9. Development of clear roles and policy guidelines
10. Adaptability
11. Open and frequent communication
12. Established informal relationships and communication links
13. Concrete, attainable goals and objectives
14. Shared vision
15. Unique purpose
16. Skilled leadership

Table 17
Wilder's Factors Ratings for Partnership B

Collaboration Factor	Partner Sector		Mean Score
	College	Industry	
History of collaboration or cooperation in the community	4.5	4.0	4.3
Collaborative group seen as a legitimate leader in the community	5.0	3.5	4.3
Favorable political and social climate	5.0	2.5	3.8
Mutual respect, understanding, and trust	5.0	5.0	5.0
Appropriate cross section of members	5.0	5.0	5.0
Members see collaboration as in their self-interest	5.0	5.0	5.0
Ability to compromise	5.0	4.0	4.5
Members share a stake in both the process and outcome	4.7	3.3	4.0
Multiple layers of participation	4.5	3.0	3.8
Flexibility	5.0	3.5	4.3
Development of clear roles and policy guidelines	5.0	3.5	4.3
Adaptability	5.0	3.0	4.0
Appropriate pace of development	4.5	3.0	3.8
Open and frequent communication	5.0	4.0	4.5
Established informal relationships and communication links	5.0	4.0	4.5
Concrete, attainable goals and objectives	5.0	4.0	4.5
Shared vision	5.0	4.0	4.5
Unique purpose	5.0	5.0	5.0
Sufficient funds, staff, materials, and time	3.0	2.0	2.5
Skilled leadership	4.0	5.0	4.5

Of the factors that Partnership B perceived to be strengths, five were rated
borderline by the industry partner:

1. Collaborative group seen as a legitimate leader in the community
2. Members share a stake in both the process and outcome
3. Flexibility
4. Development of clear roles and policy guidelines
5. Adaptability

Two of the factors for which the Partnership B industry partners' individual rating fell below the strength category actually scored near the concern level. They include adaptability and appropriate pace of development.

Wilder suggests that partnership mean scores of 3.0 to 3.9 are borderline within the collaboration (Mattessich et al., 2008). The Partnership B college and industry partner findings were borderline for the following factors:

1. Favorable political and social climate
2. Multiple layers of participation
3. Appropriate pace of development

Wilder suggests that partnership mean scores of 2.9 or below show concern for the collaboration (Mattessich et al., 2008). The Partnership B college and industry partner findings show concern sufficient funds, staff, materials, and time.

Factor ratings for partnership C. Wilder suggests that partnership mean scores of 4.0 or higher show strength of the collaboration (Mattessich et al., 2008). As shown in Table 18, the Partnership C college and industry partner findings show strength for the following factors:

1. Favorable political and social climate
2. Members see collaboration as in their self-interest
3. Flexibility
4. Established informal relationships and communication links
5. Shared vision
6. Unique purpose

Table 18
Wilder's Factors Ratings for Partnership C

Collaboration Factor	Partner Sector		Mean Score
	College	Industry	
History of collaboration or cooperation in the community	4.0	3.0	3.5
Collaborative group seen as a legitimate leader in the community	3.0	3.5	3.3
Favorable political and social climate	4.0	4.0	4.0
Mutual respect, understanding, and trust	3.0	4.0	3.5
Appropriate cross section of members	3.0	4.5	3.8
Members see collaboration as in their self-interest	4.0	4.0	4.0
Ability to compromise	2.0	4.0	3.0
Members share a stake in both the process and outcome	2.7	4.3	3.5
Multiple layers of participation	1.5	4.0	2.8
Flexibility	4.0	4.0	4.0
Development of clear roles and policy guidelines	2.0	4.0	3.0
Adaptability	3.0	4.0	3.5
Appropriate pace of development	2.5	3.0	2.8
Open and frequent communication	2.7	4.0	3.3
Established informal relationships and communication links	4.0	4.0	4.0
Concrete, attainable goals and objectives	4.0	3.7	3.8
Shared vision	4.0	4.5	4.3
Unique purpose	4.5	5.0	4.8
Sufficient funds, staff, materials, and time	3.5	2.5	3.0
Skilled leadership	2.0	5.0	3.5

Wilder suggests that partnership mean scores of 3.0 to 3.9 are borderline within the collaboration (Mattessich et al., 2008). The Partnership C college and industry partner findings were borderline for the following factors:

1. History of collaboration or cooperation in the community
2. Collaborative group seen as a legitimate leader in the community
3. Mutual respect, understanding, and trust
4. Appropriate cross section of members
5. Ability to compromise

6. Members share a stake in both the process and outcome
7. Development of clear roles and policy guidelines
8. Adaptability
9. Open and frequent communication
10. Concrete, attainable goals and objectives
11. Sufficient funds, staff, materials, and time
12. Skilled leadership

Several factors for the Partnership C college partner's individual rating fell below borderline and into the concern category. They include:

1. Ability to compromise
2. Members share a stake in both the process and outcome
3. Development of clear roles and policy guidelines
4. Open and frequent communication
5. Skilled leadership

Wilder suggests that partnership mean scores of 2.9 or below show concern for the collaboration (Mattessich et al. 2008). The Partnership B college and industry partner findings showed concern for the following factors: multiple layers of participation and appropriate pace of development.

Factor ratings for partnership D. Wilder suggests that partnership mean scores of 4.0 or higher show strength of the collaboration (Mattessich et al., 2008). As shown in Table 19, the Partnership D college and industry partner findings showed strength for the following factors:

1. History of collaboration in the community

2. Collaborative group seen as a legitimate leader in the community
3. Favorable political and social climate
4. Members see collaboration as in their self-interest
5. Ability to compromise
6. Multiple layers of participation
7. Flexibility
8. Development of clear roles and policy guidelines
9. Adaptability
10. Open and frequent communication
11. Established informal relationships and communication links
12. Concrete, attainable goals and objectives
13. Shared vision
14. Unique purpose
15. Skilled leadership

Table 19
Wilders Factors Ratings for Partnership D

Collaboration Factor	Partner Sector		Mean Score
	College	Industry	
History of collaboration or cooperation in the community	5.0	4.0	4.5
Collaborative group seen as a legitimate leader in the community	4.0	4.0	4.0
Favorable political and social climate	4.0	4.0	4.0
Mutual respect, understanding, and trust	3.5	3.5	3.5
Appropriate cross-section of members	3.5	3.0	3.3
Members see collaboration as in their self-interest	5.0	4.0	4.5
Ability to compromise	4.0	4.0	4.0
Members share a stake in both the process and outcome	4.0	3.7	3.8
Multiple layers of participation	4.0	4.5	4.3
Flexibility	4.0	5.0	4.5
Development of clear roles and policy guidelines	4.0	4.5	4.3
Adaptability	4.0	4.5	4.3
Appropriate pace of development	3.0	3.5	3.3
Open and frequent communication	4.0	5.0	4.5
Established informal relationships and communication links	4.0	5.0	4.5
Concrete, attainable goals and objectives	4.0	4.7	4.3
Shared vision	4.0	4.5	4.3
Unique purpose	4.5	5.0	4.8
Sufficient funds, staff, materials, and time	3.0	3.0	3.0
Skilled leadership	4.0	5.0	4.5

Wilder suggests that partnership mean scores of 3.0 to 3.9 are borderline within the collaboration (Mattessich et al., 2008). The Partnership D college and industry partner findings were borderline for the following factors:

1. Mutual respect, understanding, and trust
2. Appropriate cross section of members
3. Members share a stake in both the process and outcome
4. Appropriate pace of development

Factor ratings for partnership E. Wilder suggests that partnership mean scores of 4.0 or higher show strength of the collaboration (Mattessich et al., 2008). As shown in Table 20, the Partnership E college and industry partner findings showed strength for the following factors:

1. Collaborative group seen as a legitimate leader in the community
2. Favorable political and social climate
3. Mutual respect, understanding and trust
4. Members see collaboration as in their self-interest
5. Ability to compromise
6. Flexibility
7. Adaptability
8. Open and frequent communication
9. Established informal relationships and communication links
10. Concrete, attainable goals and objectives
11. Shared vision
12. Unique purpose
13. Skilled leadership

Table 20
Wilder's Factors Ratings for Partnership E

Collaboration Factor	Partner Sector		Mean Score
	College	Industry	
History of collaboration or cooperation in the community	4.0	3.5	3.8
Collaborative group seen as a legitimate leader in the community	4.0	4.0	4.0
Favorable political and social climate	5.0	5.0	5.0
Mutual respect, understanding, and trust	3.5	5.0	4.3
Appropriate cross section of members	4.0	3.5	3.8
Members see collaboration as in their self-interest	4.0	4.0	4.0
Ability to compromise	4.0	4.0	4.0
Members share a stake in both the process and outcome	3.0	4.0	3.5
Multiple layers of participation	2.0	4.0	3.0
Flexibility	4.0	4.5	4.3
Development of clear roles and policy guidelines	3.0	3.0	3.0
Adaptability	4.0	4.5	4.3
Appropriate pace of development	4.0	3.5	3.8
Open and frequent communication	3.3	4.7	4.0
Established informal relationships and communication links	4.0	5.0	4.5
Concrete, attainable goals and objectives	4.0	4.3	4.2
Shared vision	4.0	4.0	4.0
Unique purpose	4.5	4.5	4.5
Sufficient funds, staff, materials, and time	4.0	2.5	3.3
Skilled leadership	4.0	4.0	4.0

Of the factors that Partnership E perceived to be strengths, only two were not rated as strengths by the college partner: mutual respect, understanding, and trust; and open and frequent communication.

Wilder suggests that partnership mean scores of 3.0 to 3.9 are borderline within the collaboration (Mattessich et al., 2008). The Partnership E college and industry partner findings were borderline for the following factors:

1. History of collaboration or cooperation in the community
2. Appropriate cross section of members

3. Members share a stake in both the process and outcome
4. Multiple layers of participation
5. Development of clear roles and policy guidelines
6. Adaptability
7. Appropriate pace of development
8. Sufficient funds, staff, materials, and time

Of the factors that Partnership E perceived to be borderline, one fell below borderline to the concern category for the industry partner: sufficient funds, staff, materials, and time.

Factor ratings for partnership F. Wilder suggests that partnership mean scores of 4.0 or higher show strength of the collaboration (Mattessich et al., 2008). As shown in Table 21, the Partnership F college and industry partner findings showed strength for the following factors:

1. History of collaboration or cooperation in the community
2. Collaborative group seen as a legitimate leader in the community
3. Favorable political and social climate
4. Mutual respect, understanding, and trust
5. Appropriate cross section of members
6. Members see collaboration as in their self-interest
7. Ability to compromise
8. Members share a stake in both the process and outcome
9. Flexibility
10. Development of clear roles and policy guidelines

11. Adaptability
12. Open and frequent communication
13. Established informal relationships and communication links
14. Concrete, attainable goals and objectives
15. Shared vision
16. Unique purpose
17. Skilled leadership

Table 21
Wilder's Factors Ratings for Partnership F

Collaboration Factor	Partner Sector		Mean Score
	College	Industry	
History of collaboration or cooperation in the community	4.5	5.0	4.8
Collaborative group seen as a legitimate leader in the community	5.0	4.0	4.5
Favorable political and social climate	5.0	5.0	5.0
Mutual respect, understanding, and trust	5.0	4.0	4.5
Appropriate cross-section of members	4.5	4.0	4.3
Members see collaboration as in their self-interest	5.0	4.0	4.5
Ability to compromise	4.0	4.0	4.0
Members share a stake in both the process and outcome	4.3	4.0	4.2
Multiple layers of participation	4.5	3.0	3.8
Flexibility	5.0	4.0	4.5
Development of clear roles and policy guidelines	5.0	3.5	4.3
Adaptability	5.0	4.0	4.5
Appropriate pace of development	4.5	2.5	3.5
Open and frequent communication	5.0	3.0	4.0
Established informal relationships and communication links	5.0	4.0	4.5
Concrete, attainable goals and objectives	4.7	3.3	4.0
Shared vision	5.0	3.5	4.3
Unique purpose	5.0	4.5	4.8
Sufficient funds, staff, materials, and time	4.0	3.0	3.5
Skilled leadership	5.0	4.0	4.5

Of the factors that Partnership F perceived to be strengths, four were not rated as strengths by the industry partner:

1. Development of clear roles and policy guidelines
2. Open and frequent communication
3. Concrete, attainable goals and objectives
4. Shared vision

Wilder suggests that partnership mean scores of 3.0 to 3.9 are borderline within the collaboration (Mattessich et al., 2008). The Partnership F college and industry partner findings were borderline for the following factors:

1. Multiple layers of participation
2. Appropriate pace of development
3. Sufficient funds, staff, materials, and time

Of the factors that Partnership F perceived to be borderline, the industry partner rated the appropriate pace of development as a concern.

Factor ratings for partnership G. Wilder suggests that partnership mean scores of 4.0 or higher show strength of the collaboration (Mattessich et al., 2008). As shown in Table 22, the Partnership G college and industry partner findings showed strength for the following factors:

1. Favorable political and social climate
2. Members share a stake in both the process and outcome
3. Flexibility
4. Appropriate pace of development
5. Open and frequent communication

6. Shared vision
7. Unique purpose
8. Skilled leadership

Table 22
Wilder's Factors Ratings for Partnership G

Collaboration Factor	Partner Sector		Mean Score
	College	Industry	
History of collaboration or cooperation in the community	4.0	3.5	3.8
Collaborative group seen as a legitimate leader in the community	4.0	3.5	3.8
Favorable political and social climate	5.0	4.0	4.5
Mutual respect, understanding, and trust	3.5	4.0	3.8
Appropriate cross section of members	3.5	2.0	2.8
Members see collaboration as in their self-interest	5.0	2.0	3.5
Ability to compromise	4.0	3.0	3.5
Members share a stake in both the process and outcome	4.7	3.3	4.0
Multiple layers of participation	4.0	3.5	3.8
Flexibility	4.0	4.0	4.0
Development of clear roles and policy guidelines	4.0	3.5	3.8
Adaptability	4.0	3.5	3.8
Appropriate pace of development	4.0	4.0	4.0
Open and frequent communication	4.0	4.0	4.0
Established informal relationships and communication links	4.0	3.0	3.5
Concrete, attainable goals and objectives	4.0	3.7	3.8
Shared vision	5.0	3.0	4.0
Unique purpose	5.0	4.0	4.5
Sufficient funds, staff, materials, and time	3.0	3.0	3.0
Skilled leadership	4.0	4.0	4.0

In Partnership G, two factors were not rated as strengths by the industry partner:

(1) members share a stake in both the process and outcome, and (2) shared vision.

Wilder suggests that partnership mean scores of 3.0 to 3.9 are borderline within the collaboration (Mattessich et al., 2008). The Partnership G college and industry partner findings were borderline for the following factors:

1. History of collaboration or cooperation in the community
2. Collaborative group seen as a legitimate leader in the community
3. Mutual respect, understanding, and trust
4. Members see collaboration as in their self-interest
5. Ability to compromise
6. Multiple layers of participation
7. Development of clear roles and policy guidelines
8. Adaptability
9. Established informal relationships and communication links
10. Concrete, attainable goals and objectives
11. Sufficient funds, staff, materials, and time

Of the factors that Partnership G perceived to be borderline, the industry partner rated as a concern the factor of members see collaboration as in their self-interest.

Wilder suggests that partnership mean scores of 2.9 or below show concern for the collaboration (Mattessich et al., 2008). The Partnership G college and industry partner findings showed concern for an appropriate cross section of members.

Summary and Conclusions

This chapter provided findings of the data for seven of the AMTEC local partnerships and reported the stage of collaboration for each and their collaboration strength factor ratings. The study participants were local community college and automotive industry partners who were members of the AMTEC National Center of Excellence. Their perceived stages of collaboration, perceived factor strength ratings,

and difference in factors for local partners were reported using results of Austin's (2000b) collaboration continuum, WCFI, and telephone interviews to further validate the study's findings. These findings reveal how AMTEC's local partnerships are progressing along the collaboration continuum and the factors that contribute to their strength and reveal weaknesses that can contribute to stage progression.

CHAPTER 5: DATA ANALYSIS

Summary of the Study

AMTEC was created to strengthen the global competitiveness of the United States automotive workforce. To accomplish its goals, strong local interorganizational collaboration between community colleges and their respective automotive industry partners was needed. This study examines each local partnership's stages of collaboration and the factors contributing to success, including the identification of strengths and values. The use of research-based stages of collaboration and key factors are central to continued development of collaboration and provide important research for creation of similar collaborations (Austin, 2000a). The study applied James Austin's (2000a) theoretical model of strategic collaboration and WCFI to AMTEC partners to investigate the dynamics of college/industry stages of collaboration and factors that contribute to success. More specifically, the study answers the following questions:

1. What are the key factors and stages of collaboration for the AMTEC college/industry partnerships as seen through the research of WCFI as used by Austin?
2. What is the difference in perception of the stages of collaboration in terms of strengths and value between the AMTEC industry and education partners? Which of the factors has the strongest relationship to Austin's collaboration stages?

3. What recommendations can be made for strengthening college/industry collaborations based on the collaborative factors and framework in the research?

Factors such as globalization, information technology, and industrial consolidation have contributed to increased interest in collaboration (Kanter, 1999). These factors have contributed to rapid economic and technology changes that caused increased competition or competitive turbulence, thus building appreciation for interorganizational collaboration to increase capacity while gaining shared resources (Gray, 1989). Financial turbulence has had a significant impact on the United States automotive industry (Eisenstein, 2009) and has led to interest in preparing a workforce that can keep pace with the knowledge and innovation necessary to compete in global markets (Soares & Steigleder, 2012).

Theories of interorganizational collaboration are examined, along with the effects, factors, and models that impact these collaborations. The merits of different models of interorganizational collaboration were examined including a business, same-sector; and a government, business, and education context. The review of literature regarding such models found that Austin (2000b) provided a framework to systematically analyze the position of collaboration within stages of development and sustainability using a research-based continuum that uniquely addresses the research questions regarding stages of collaboration and the factors that lead to collaboration (Austin & Hesselbein, 2002). The review of literature pointed to important internal and external factors that impact collaboration. WCFI was used in the study because it provides an extensive list of factors that impact both process and context and has been determined as a tool to guide research

in human services, government, and other nonprofit fields (Horton et al., 2009). Based on the literature review for this study, Austin's (2000b) model of collaboration was used to determine partnership stage, and WCFI was used to measure factors that impact collaboration. Seven of AMTEC's local college and industry partners participated, with a rate of 100% in the study.

Key Factors and Stages of Collaboration

This section of the study provides analysis of research question one: What are the key factors and stages of collaboration for the AMTEC college/industry partnerships as seen through the research of WCFI as used by Austin? Appendix A presents findings regarding perceived strength of WCFI for each of the AMTEC partnerships.

The WCFI factor strength ratings for the AMTEC college/industry partnerships shown in Appendix A identify perceived strength of factor ratings for each of the partnerships. Scores of 4.0 or higher are identified as strength. Wilder suggests that scores of 4.0 or higher were designated as strength and need no special attention (Mattessich et al., 2008). Scores from 3.0 to 3.9 are designated as borderline and should be discussed by the partners to determine further attention. Scores of 2.9 or lower raise concern; Wilder stated that these factors revealed concern that should be addressed by the partners (Mattessich et al., 2008).

Wilder recommends that researchers consider the scores for each of the partners within a collaborative group for consensus or variances. If variance is found, researchers should explore why they exist (Mattessich et al., 2008). Both factor variance and consensus ratings were identified for each partnership, and strength and weakness of the AMTEC collaborations were analyzed with respect to the factors that influence their

collaborative process or serve as a relative indicator of each of the partner's readiness to collaborate (Mattessich et al., 2008).

The highest-rated factor for the group of AMTEC partnerships was 18, unique purpose, all 14 participants identified it as a strength factor. Factor 15, established informal relationships and communication links; factor 10, flexibility; factor 6, members see collaboration as in their self-interest; and factor 3, favorable political and social climate, were identified as strength factors by 13 of the 14 participants. These strength factors can be drawn upon to sustain the collaborations (Mattessich et al., 2008). The findings also showed strength ratings in the majority of the factors, suggesting that many factors could be drawn upon to sustain the collaborations.

Nine of the 14 participants perceived a borderline strength rating for factor 19, sufficient funds, staff, materials, and time. This rating should be discussed by the partners to determine if it deserves further attention. Another borderline strength rating that needs to be addressed is factor 4, mutual respect, understanding, and trust, which received a borderline strength-rating from seven of the participants. A positive outcome for the factor ratings is that none received more than three concern ratings. However, when factors reveal concern, they should be addressed by the partners.

Appendix B reports the findings for each of the partnership's stages of collaboration for Austin's 10 collaboration continuum. The ratings were separated by the three stages of collaboration: integrated, transitional, and philanthropic. The figure allowed the researcher to identify consensus or variance of stage of collaboration ratings for each partnership. Consensus provided the strongest evidence of collaboration stage. Significant variance of stage of collaboration should be appraised to explore whether

each partner's expectations are being met and to address factors that support further strengthening of the collaboration. The factors of strong collaborations are specific for each of the partners and provide guidance to understand expectations that contribute to stage progression (Austin, 2000b).

Differences of Perception Relative to Strengths and Values

Advancing knowledge and understanding of the strength of collaboration relative to exchange of value between participants is critical to persons interested in pursuing successful collaborations. An analysis of research question two provides knowledge and understanding to advance strength and value of collaboration. Research question two asks: What is the difference of perception between the AMTEC industry and education partners of the stages of collaboration in terms of strengths and value? And, which factors have the strongest relationship to Austin's collaboration stages?

Strength (factors) and value (stage) of collaboration are ways in which partners progress through Austin's collaboration continuum (Austin & Hesselbein, 2002).

Analysis of the data identifies collaborations in which partners have consensus of stage of collaboration. Examination of the factors that have strength ratings provides agreement of those that contribute to stage progression. This agreement of factors and stage provides a road map to advanced stages of collaboration.

Level of engagement collaboration continuum. An analysis of the data found that Partnerships B and E were the only ones that perceived their collaboration to have achieved Austin's (2000a) integrated stage of collaboration, the most advanced. The integrated stage of collaboration for these two partnerships, was achieved for the Level of

Engagement collaboration continuum. The factors that show the strongest relationships to the level of engagement collaboration continuum stage were:

- Factor 6 – Members see collaboration as in their self-interest
- Factor 7 – Ability to compromise
- Factor 15 – Established informal relationships and communication links
- Factor 16 – Concrete, attainable goals and objectives
- Factor 17 – Shared vision
- Factor 18 – Unique purpose
- Factor 20 – Skilled leadership

Personal connection collaboration continuum. Partnership B also achieved an integrated stage of collaboration for Austin's (2000a) Personal Connection collaboration continuum. An analysis of the data found additional factors that were not present for Partnership E and related to the personal connection continuum. They are:

- Factor 1 – History of collaboration or cooperation in the community
- Factor 4 – Mutual respect, understanding, and trust
- Factor 5 – Appropriate cross section of members
- Factor 14 – Open and frequent communication

Mutual expectations and accountability collaboration continuum. Partnership B also achieved Austin's (2000a) integrated stage of collaboration for the Mutual Expectations and Accountability collaboration continuum. The factors with the strongest relationship were:

- Factor 1 – History of collaboration or cooperation in the community
- Factor 4 – Mutual respect, understanding, and trust
- Factor 5 - Appropriate cross section of members

- Factor 14 - Open and frequent communication

In the transactional stage of collaboration, interaction intensified due to mutually beneficial relationships that have develop based on compatibility of values. Two-way benefit is a direct result of this stage, as involvement and the level of interaction intensified compared to the philanthropic stage (Austin, 2000b). Austin's research suggests that most for-profit / non-profit partnerships do not achieve the transactional stage of collaboration, therefore, the transactional stage of collaboration; therefore, that stage of collaboration of the AMTEC partners showed strength and value of collaboration. The remaining collaboration continuum provided insight and guidance regarding strength and value of collaboration for the transitional stage.

Strategic value collaboration continuum. Partnerships B, C, D, E, and F achieved the transactional stage of collaboration for the Strategic Value continuum. An analysis of the data found the following strength of factor ratings relative to the Strategic Value collaboration continuum:

- Factor 6 – Members see collaboration as in their self-interest
- Factor 15 – Established informal relationships and communication links
- Factor 18 – Unique purpose

Progress communication collaboration continuum. Analysis of the Progress Communication collaboration continuum found progression into Austin's (2000a) transactional stage of collaboration for Partnerships B, D, E, and F. The strength of factor ratings for the Personal Communication collaboration continuum included:

- Factor 7 – Ability to compromise
- Factor 20 – Skilled leadership

Resource exchange collaboration continuum. Analysis of the Resource Exchange collaboration continuum found progression into the transactional stage for Partnerships B, D, E, and F. The factors found to be strengths for that collaboration continuum included:

- Factor 7 – Ability to compromise
- Factor 20 – Skilled leadership

Contextual learning collaboration continuum. Analysis of the Contextual Learning collaboration continuum found value progression into the transactional stage for Partnerships C, D, and F. Factor 3, favorable political and social climate was found to be a strength for that collaboration continuum.

Strategic alignment collaboration continuum. For the Strategic Alignment collaboration continuum, Partnerships B, D, and E achieved the transitional stage of collaboration. The factors these three partnerships shared as strength of factors ratings were:

- Factor 6 – Members see collaboration as in their self-interest
- Factor 7 – Ability to compromise
- Factor 15 – Established informal relationships and communication links
- Factor 16 – Concrete, attainable goals and objectives
- Factor 17 – Shared vision
- Factor 18 – Unique purpose
- Factor 20 – Skilled leadership

Collaboration mindset collaboration continuum. Partnerships D and E achieved the transitional stage of collaboration for the Collaboration Mindset continuum.

The factors that showed strength of factors ratings for the Collaboration Mindset continuum were:

- Factor 2 – Collaborative group seen as a legitimate leader in the community
- Factor 3 – Favorable political and social climate
- Factor 6 – Members see collaboration as in their self-interest
- Factor 7 – Ability to compromise
- Factor 10 – Flexibility
- Factor 12 – Adaptability
- Factor 15 – Established informal relationships and communication links
- Factor 16 – Concrete, attainable goals and objectives
- Factor 17 – Shared vision
- Factor 18 – Unique purpose
- Factor 20 – Skilled leadership

Focused attention collaboration continuum. For the Focused Attention continuum, Partnership D achieved the transitional stage. The factor that was found to be a unique strength was Factor 9, multiple layers of participation.

Recommendations for Strengthening Collaboration

This section provides an answer to research question three: What recommendations can be made for strengthening college/industry collaborations based on the collaborative factors and framework in the research? To answer this question, partnerships in the advanced stages of collaboration were compared with those in the early stages in order to provide guidance for strengthening collaboration. Examination of the factors present and their associated strength ratings within strong collaborations provided guidance to advanced stages of progression for those who wished to strengthen

collaboration (Austin, 2000b). Movement along the collaboration continuum is based on decisions and actions by the partners; therefore, comparisons helped to assess required changes in resources, processes, and attitude of those wished to advance (Austin, 2000a).

Comparisons of Austin's (2000b) collaboration continuum and their relative factor strength-ratings will provide guidance in strengthening collaborative relationships (Austin & Hesselbein, 2002). The strong collaborations were those that have advanced to Austin's integrated and transitional stages of collaboration continuum, and the weaker ones were those in the philanthropic stage in most of Austin's collaboration continuum. Appendix B the researcher provides an analysis of the strength of collaboration continuum and the strength factors that supported progression to determine which continuum and factors were needed by the weaker partnerships to strengthen their collaborations.

Analysis of the stages of collaboration for Austin's (2000a) 10 collaboration continuum findings supported Partnership B having the most advanced collaboration. As shown in Appendix B, three of the 10 collaboration continuum factors advanced to the integrated stage, and another four advanced into the transitional stage. As shown in the Strength of Factors section of Appendix B, Partnership B had identified 11 factors that have strength ratings for their collaboration. The Strength of Collaboration section of Appendix B indicated that Partnership E also was in the advanced stage of collaboration, with one continuum advanced to the integrated stage and another seven in the transition stage. Also identified were 11 strength factor ratings for their collaboration. Partnership D showed strong collaboration, with 8 of the 10 continuums in the transition stage and 15 strength of factors ratings. Partnerships C and F showed moderate strength, with 4 of the

10 continuums in the transition stage and 11 and 13 factors with strength ratings. Finally, both Partnerships A and G were early in the collaboration stage and needed guidance on how to strengthen their collaborations. Partnership A exhibited the best potential to strengthen their collaboration, with 7 of the 10 continuums in the philanthropic stage and six factors with strength ratings. Partnership G has two collaboration continuums in the philanthropic stage and six factors with strength ratings.

In order to provide recommendations for strengthening collaborations, the researcher compared key strength of factors ratings relative to stage progression, where the strong collaborations have advanced but the weaker have not successfully advanced.

Strengthening level of engagement. As seen in Table 23, Partnership B was in the integrated stage of collaboration. For this collaboration continuum, Partnerships A and G showed variance of perceived stages of collaboration. An analysis of the relative factor strength ratings for Austin's (2000b) Level of Engagement collaboration continuum is provided in Table 24. Comparison of Partnership B strength of factors rating provides a guidance for the factors that must be addressed by Partnership A and Partnership G to progress into the integrated stage of collaboration.

Table 23
Level of Engagement Stage Progression

	Partnership A		Partnership B		Partnership G	
Collaboration Continuum	College	Industry	College	Industry	College	Industry
Level of Engagement	Philanthropic	Transition	Integrated	Integrated	Integrated	Philanthropic

Table 24
Level of Engagement Strength Ratings

Factors	Partnership A		Partnership B		Partnership G	
	College	Industry	College	Industry	College	Industry
Factor 6: Members see collaboration as in their self-interest	Strength	Strength	Strength	Strength	Strength	Concern
Factor 7: Ability to compromise	Borderline	Strength	Strength	Strength	Strength	Borderline
Factor 15: Established informal relationships and communication links	Strength	Strength	Strength	Strength	Strength	Borderline
Factor 16: Concrete, attainable goals and objectives	Strength	Borderline	Strength	Strength	Strength	Borderline
Factor 17: Shared vision	Strength	Borderline	Strength	Strength	Strength	Borderline
Factor 18: Unique purpose	Strength	Strength	Strength	Strength	Strength	Strength
Factor 20: Skilled leadership	Strength	Borderline	Strength	Strength	Strength	Strength

One of the most notable differences in this analysis was that of factor strength ratings of the industry partners in comparison to the college partners for both Partnerships A and G. Both industry partners have some concern about concrete, attainable goals and objectives and a shared vision. Another notable concern is Partnership G's industry partner's concern that they did not see collaboration in their self-interest, while the college partner perceives this factor as a strength. This difference of perception was a significant variance in strength rating. These factors must be discussed so that the partners understand and have a shared vision and alignment of strategy, mission, and values if their partnerships are to progress into strong collaboration (Mattessich et al., 2008).

Austin (2000b) suggested that collaborators identify a purpose for a relationship based on its relative importance, as well as its transformative potential. A purpose that

has factor strength ratings was the unique purpose of the AMTEC mission and vision. The factor can provide an opportunity to begin discussion among these collaborative partners. Even though a strategic fit may not be immediately obvious, coming together to discuss the goals, mission, and vision of AMTEC they can discover common ground. This can begin the engagement process needed to allow them to move from low to high engagement, and the importance then moves from peripheral to central (Austin, 2000b). Analysis of the level of engagement continuum also suggested that Partnerships A and G need to strengthen continuum factors such as strategic alignment, collaboration mindset, and personal connection as a foundation for a strong collaboration. In the following sections, the researcher provides guidance for strengthening these collaboration continuums.

Strengthening strategic alignment. As seen in Table 25, Partnership B was in the transition stage of collaboration. For this collaboration continuum, Partnership A concurred that they were at the philanthropic stage of collaboration, and Partnership G showed variance of perceived stage of collaboration. An analysis of the relative factor of strength ratings for Austin’s Strategic Alignment collaboration continuum is provided in Table 26. Compared to Partnership B, Table 25 provides an insight into the concerns that must be addressed by Partnerships A and G to progress into an advanced stage of collaboration, from the industry partners for the most part.

Table 25
Strategic Alignment Stage Progression

	Partnership A		Partnership B		Partnership G	
Strategic Alignment	Philanthropic	Philanthropic	Transition	Transition	Philanthropic	Philanthropic

Table 26
Strategic Alignment Factor Strength Rating

Factors	Partnership A		Partnership B		Partnership G	
	College	Industry	College	Industry	College	Industry
Factor 6: Members see collaboration as in their self-interest	Strength	Strength	Strength	Strength	Strength	Concern
Factor 7: Ability to compromise	Borderline	Strength	Strength	Strength	Strength	Borderline
Factor 15: Established informal relationships and communication links	Strength	Strength	Strength	Strength	Strength	Borderline
Factor 16: Concrete, attainable goals and objectives	Strength	Borderline	Strength	Strength	Strength	Borderline
Factor 17: Shared vision	Strength	Borderline	Strength	Strength	Strength	Borderline
Factor 20: Skilled leadership	Strength	Borderline	Strength	Strength	Strength	Strength

Austin's (2000b) research stated that strategic alignment significantly strengthened collaboration, but, to do so, the partners must have significant support and direct involvement from their leadership. Involvement from top management is critical to success; therefore, the factors of strength ratings suggest that Partnerships A and G needed to engage top leadership in a discussion to understand better and develop a shared vision and align their strategy (Mattessich et al., 2008).

Strengthening collaboration mindset. As seen in Table 27, Partnership E is in the transition stage of collaboration. For this collaboration continuum, Partnership A had consensus that the partnership was at the philanthropic stage, and Partnership G showed variance of perceived stage of collaboration. An analysis of the relative factor of strength ratings for Austin's Strategic Alignment collaboration mindset is provided in Table 28. Compared to Partnership E, the table again provided an insight into the concerns that

must be addressed by Partnerships A and G to progress into an advanced stage of collaboration. Once again, many of the same factors prohibit the partnerships from moving into advanced stages of collaboration. It is notable that the concerns were generally from the industry partners, in comparison to the college partners' concerns. Austin's (2000a) collaboration mindset addressed the fundamental approach to their relationship. In order to strengthen their partnership, they must increase engagement to ensure they are not operating at arm's length, that it is one of interdependency, and it is one with passion (Austin, 2000b). Engaging both partners in a shared vision and mission will enable them to overcome attitudes resistant to collaboration and begin to realize their full potential. To accomplish this, it will be important to engage top management to ensure they are working toward a shared vision (Austin, 2000b).

Table 27
Collaboration Mindset Stage Progression

	Partnership A		Partnership E		Partnership G	
Collaboration Mindset	Philanthropic	Philanthropic	Transition	Transition	Transition	Philanthropic

Table 28
Collaboration Mindset Factor Strength Rating

Factors	Partnership A		Partnership E		Partnership G	
	College	Industry	College	Industry	College	Industry
Factor 2: Collaborative group seen as a legitimate leader in the community	Strength	Borderline	Strength	Strength	Strength	Borderline
Factor 3: Favorable political and social climate	Strength	Strength	Strength	Strength	Strength	Strength
Factor 6: Members see collaboration as in their self-interest	Strength	Strength	Strength	Strength	Strength	Concern
Factor 7: Ability to compromise	Borderline	Strength	Strength	Strength	Strength	Borderline
Factor 10: Flexibility	Strength	Strength	Strength	Strength	Strength	Strength
Factor 12: Adaptability	Borderline	Concern	Strength	Strength	Strength	Borderline
Factor 15: Established informal relationships and communication links	Strength	Strength	Strength	Strength	Strength	Borderline
Factor 16: Concrete, attainable goals and objectives	Strength	Borderline	Strength	Strength	Strength	Borderline
Factor 17: Shared vision	Strength	Borderline	Strength	Strength	Strength	Borderline
Factor 18: Unique purpose	Strength	Strength	Strength	Strength	Strength	Strength
Factor 20: Skilled leadership	Strength	Borderline	Strength	Strength	Strength	Strength

Strengthening personal connection. As seen in Table 29, Partnership B is in the integrated stage, and both Partnerships A and G are in the philanthropic stage of collaboration. An analysis of the relative factor of strength ratings for Austin's Personal Connection collaboration continuum is provided in Table 30. Partnership B had strength of factor ratings for all the related factors, which is reflective of having reached Austin's (2000b) most advanced stage of collaboration. Austin's research has revealed that an essential ingredient for strong leadership involvement in cross-sector collaboration is an

emotional connection, as these partnerships are created, nurtured, and extended by leaders (Austin, 2000b). Austin suggested that, once partners have found each other, a way to strengthen their collaboration is for the leadership team to spend time getting acquainted and assessing their mutual capabilities and competencies. This tends to develop deeper and broader connections (Austin, 2000b). This communication is essential to building and developing trust and respect between the partners (Austin & Hesselbein, 2002).

Table 29
Personal Connection Stage Progression

	Partnership A		Partnership B		Partnership G	
Personal Connection	Philanthropic	Philanthropic	Integrated	Integrated	Transition	Philanthropic
Mutual Expectations and Accountability	Philanthropic	Philanthropic	Integrated	Integrated	Philanthropic	Philanthropic

Table 30
Personal Connection Factor Strength Ratings

Factors	Partnership A		Partnership B		Partnership G	
	College	Industry	College	Industry	College	Industry
Factor 1: History of collaboration or cooperation in the community	Strength	Strength	Strength	Strength	Strength	Borderline
Factor 4: Mutual respect, understanding, and trust	Borderline	Borderline	Strength	Strength	Borderline	Strength
Factor 5: Appropriate cross section of members	Strength	Borderline	Strength	Strength	Borderline	Concern
Factor 14: Open and frequent communication	Borderline	Borderline	Strength	Strength	Strength	Strength

Strengthening collaboration value. As seen in Table 31, Partnership B is in the transition stage of collaboration, Partnership A is in the philanthropic stage, and Partnership G shows variance of stage progression. An analysis of the relative factor of

strength ratings for Austin’s Personal Connection collaboration continuum is provided in Table 32. To construct collaboration value, the participating organizations must be jointly involved in developing a clear definition of what each side seeks from the partnership, since the viability of the collaboration depends on its ability to create value for both organizations. By engaging top leadership in clearly defining the value, partners can better configure the collaboration; create concrete, attainable goals and objectives; engage the right people in the process to see why it is in their self-interest; and establish and nurture relationships and communication links (Austin, 2000b). Partnership As and G must revisit their goals for their collaboration if they want to be successful. Partnership G must re-examine whether the top leadership of both organizations is involved and pursue how to put in place a structure that has clear definition of what each partner seeks from the partnership.

Table 31
Collaboration Value Stage Progression

	Partnership A		Partnership B		Partnership G	
Collaboration Value	Philanthropic	Philanthropic	Transition	Transition	Transition	Philanthropic

Table 32
Collaboration Value Factor Strength Ratings

Factors	Partnership A		Partnership B		Partnership G	
	College	Industry	College	Industry	College	Industry
Factor 6: Members see collaboration as in their self-interest	Strength	Strength	Strength	Strength	Strength	Concern
Factor 15: Established informal relationships and communication links	Strength	Strength	Strength	Strength	Strength	Borderline
Factor 16: Concrete, attainable goals and objectives	Strength	Borderline	Strength	Strength	Strength	Borderline
Factor 18: Unique purpose	Strength	Strength	Strength	Strength	Strength	Strength

Implications

The factors of strong collaborations provide guidance to understanding partner expectations contributing to stage progression (Austin, 2000b). Strength (factors) and value (stage) of collaboration show how partners progress through Austin's collaboration continuum (Austin & Hesselbein, 2002). Analysis of the data identified strong collaborations and others that were weak. The strong collaborations provide a roadmap to advanced stages of collaboration in those that are weaker. By analyzing factors present within the strong collaborations and providing a gap analysis of those missing in weaker collaborations, leaders can identify what is missing. Knowing that information is critical to success and provides topics for discussion between partners who want to strengthen their collaboration.

Creating a competitive workforce in the United States is an enormous challenge. It requires the attention of government, community college, and business leaders to work together to strengthen and prepare a competitive workforce by supporting AMTEC and the creation of similar national collaborative partnerships. AMTEC has received much attention regarding the unique nature of the partnership, and this study found the greatest strength of factor rating to be the unique purpose of AMTEC. The implications for creating similar collaborative partnerships include how leaders embrace and develop collaboratives that can cross local, regional, state, and national borders to include strong college and industry partners. These types of collaborations should be developed and leveraged to strengthen and improve local partnerships using Austin's (2000b) collaboration continuum and WCFI to redress partner concerns.

Another implication is a factor in which the partners had the most concern, sufficient funds. Consideration must be given to ensure that similar college/industry collaborative partnerships receive sufficient funding to ensure goal attainment to prepare a competitive workforce in the United States, an issue of national importance.

Future Research

Collaboration value creation has not been analyzed by researchers and practitioners to the extent its importance merits. Although much for-profit/non-profit collaboration currently exists, and many more will be created, there is a lack of quantitative and qualitative case study research providing evidence of strength or value of collaboration because of financial turbulence of a global economy and other social factors.

Future research should contribute to the body of knowledge regarding how the WCFI instrument can be used to determine ways in which successful leadership involves all levels within their organizations in collaborative relationships. This research would provide additional data that could potentially impact average strength of factor rating scores using the WCFI recommendations for strength ratings. It also would provide leaders with important data regarding how to strengthen their collaborations.

Finally, as community colleges and business and industry engagement in collaborative partnerships increases in order to prepare a competitive workforce, leaders need to better understand how to create a strong collaboration, what type of collaboration they might have, and, how they might strengthen and sustain that collaboration over time. As these partnerships evolve, this and future research on the uses of WCFI and Austin's

(2000b) collaboration continuum can provide valuable information regarding strength and value of their collaborative relationships (Austin, 2000a). Future research should focus on providing practitioners with additional knowledge about strength and value of similar sector-based collaborative partnerships that contribute to strengthening collaborations by engaging partners in co-value generation.

Summary and Conclusions

This research provided findings and analysis of the key factors and stages of collaboration for the AMTEC college/industry partnerships using WCFI and Austin's (2000b) Collaboration Continuum. Findings of perceived strength stages of collaboration are provided using the WCFI and Austin's collaboration continuum to identify factor and stage progression. Finally, this study explored the differences of perceptions between the AMTEC industry and education partners in terms of strengths and value to provide recommendations to strengthen their collaborations.

REFERENCES

- Alter, C., & Hage, J. (1993). *Organizations working together*. Thousand Oaks, CA: Sage Publishing.
- Antonelli, G., & Pegoretti, G. (2008). *Dynamic capabilities between firm organization and local systems of production*. New York: Routledge Publishers.
- Austin, J. E. (2000a). Strategic collaboration between nonprofits and business. *Nonprofit and Voluntary Sector Quarterly*, 29(suppl 1), 69-97. doi: 10.1177/089976400773746346
- Austin, J. E. (2000b). *The collaboration challenge: How nonprofits and businesses succeed through strategic alliances*. San Francisco: Jossey-Bass Publishers.
- Austin, J. E., & Hesselbein, F. (2002). *Meeting the collaboration challenge: Developing strategic alliances between nonprofit organizations and businesses*. San Francisco: Jossey-Bass Publishers.
- Automotive News*. (2012). BMW in talks with GM on future technologies, Reithofer says. Retrieved from <http://edit.autonews.com/apps/pbcs.dll/article?AID=/20120306/OEM/120309916&template=printart>
- Axelrod, R., Mitchell, W., Thomas, R. E., Bennett, D. S., & Bruderer, E. (1995). Coalition formation in standard-setting alliances. *Management Science*, 41(9), 1493-1508.
- Barnes, T., Pashby, I., & Gibbons, A. (2002). Effective university-industry interaction: A multi-case evaluation of collaborative R&D projects. *European Management Journal*, 20(3), 272-285. doi: 10.1016/S0263-2373(02)00044-0

- Barringer, B. R., & Harrison, J. S. (2000). Walking a tightrope: Creating value through interorganizational relationships. *Journal of Management*, 26(3), 367-403.
- Bragg, D. D. (2001). Community college access, mission, and outcomes: Considering intriguing intersections and challenges. *Peabody Journal of Education*, 76(1), 93-116. doi: 10.1207/S15327930PJE7601_06
- Branco, M. C., & Rodrigues, L. L. (2007). Positioning stakeholder theory within the debate on corporate social responsibility. *Electronic Journal of Business Ethics and Organization Studies*, 12(1), 5-15. Retrieved from http://ejbo.jyu.fi/pdf/ejbo_vol12_no1_pages_5-15.pdf
- Britannica. (2012). *Merriam-Webster Dictionary*. Retrieved from: <http://www.merriam-webster.com/dictionary/collaborator>
- Caro, M. E. (2007). *Higher education collaboration with industry: Three case studies of instruction based partnerships* (Doctoral dissertation). Retrieved from Proquest Information and Learning Company. (UMI Microform 3255874).
- Castanias, R. P., & Helfat, C. E. (2001). The managerial rents model: Theory and empirical analysis. *Journal of Management*, 27, 661-678. doi: 10.1177/014920630102700604
- Chalhoub, M. S. (2007). A framework in strategy and competition using alliances: Application to the automotive industry. *International Journal of Organization Theory and Behavior*, 10(2), 151-183.
- Chao, G., & Muhittin, A. (2005). Understanding collaboration among nonprofit organizations: Combining resource dependence, institutional and network perspectives. *Nonprofit and Voluntary Sector Quarterly*, 34(3), 340-361.

- Chaskin, R. J. (2001). Building community capacity: A definitional framework and case studies from a comprehensive community initiative. *Urban Affairs Review*, 36(3), 291-323. doi: 10.1177/10780870122184876
- Child, J. & Faulkner, D. (1998). *Strategies of co-operation: Managing alliances, networks, and joint ventures*. Oxford, England: Oxford University Press.
- Clarke, A., & Fuller, M. (2010). Collaborative strategic management: Strategy formulation and implementation by multi-organizational cross-sector social partnerships. *Journal of Business Ethics*, 94, 85-101. doi: 10.1007/s10551-011-0781-5
- CNBC LLC. (2012). US. *Justice Department warns Apple publishers over e-books*. Retrieved from <http://www.cnn.com/id/46678751>
- Cohen, W. M., & Levinthal, D. A. (1990). Absorptive capacity: A new perspective on learning and innovation. *Administrative Science Quarterly*, 35(1), 128-152.
- Couture, M., Delong, J., & Wideman, R. (1999). What we have learned by building a collaborative partnership. *International Journal for Leadership in Learning, North America*, 3(6), 35-70.
- Cropper, S., Ebers, M., Huxham, C., & Smith, P. (2008). *The Oxford handbook of inter-organizational relations*. New York: Oxford University Press, Inc.
- Davis, D. (1986). Why partnerships? Why now? Public-private partnerships: Improving urban life. *The Academy of Political Science*, 36(2), 1-3.
- Derosé, K. P., Beatty, A., & Jackson, C. A. (2004). *Evaluation of community voices Miami, Affecting health policy for the uninsured*. Retrieved from the Rand

Corporation website:

http://www.rand.org/pubs/technical_reports/2004/RAND_TR177.pdf

DiMaggio, P. J., & Powell, W. W. (1983). The iron cage revisited: Institutional isomorphism and collective rationality in organizational fields. *American Sociological Review*, 48(2), 147-160. Retrieved from <http://www.jstor.org/stable/2095101>

Dziczek, K. (2010). *The impact on the US. economy of the successful automaker bankruptcies*. Retrieved from The Center for Automotive Research website: <http://www.cargroup.org/assets/files/bankruptcy.pdf>

Einbinder, S. D., Robertson, P. J., Garcia, A., Vuckovic, G., & Patti, R. J. (2000). Interorganizational collaboration in social service organizations: A study of the prerequisites to success. *Journal of Children & Poverty*, 6(2), 119-140. doi: 10.1080/713675966

Eisenhardt, K. M. (1989). Building theories from case studies research. *Academy of Management Review*, 14(4), 532-550.

Eisenstein, P. (2009). Ford changes focus. *Professional Engineering*, 22(11), 28.

Emery, F., & Trist, E. (1973). *Toward a social ecology*. New York: Plenum Publishing.

Franco, L. A. (2007). Facilitating collaboration with problem structuring methods: A case study of an inter-organizational construction partnership. *Group Decision and Negotiation*, 17(4), 267-286. doi: 10.1007/s10726-007-9093-7

Frazier, K., Laprade, N., Coxen, T., & Bird, K. (2011). *Advancing American economic competitiveness through Latino immigrant worker success*. Retrieved from National Council for Workforce Education website:

http://www.ncwe.org/resource/resmgr/workforce_dev_reports/advancing_american_economic.pdf

Freeman, R. E. (1994). The politics of stakeholder theory: Some future directions.

Business Ethics Quarterly, 4(4), 409-421.

Gilmour, A. D. (1988). Changing times in the automotive industry. *Academy of*

Management Executive, 2(1), 23-28.

Gray, B. (1985). Conditions facilitating interorganizational collaboration. *Human*

Relations, 38, 911-936.

Gray, B. (1989). *Collaborating: Finding common ground for multiparty problems*. San

Francisco: Jossey-Bass Publishers.

Hardy, C., Phillips, N., & Lawrence, T. B. (2003). Resources, knowledge, and influence:

The organizational effects of interorganizational collaboration. *Journal of*

Management Studies, 40(2), 321-347. doi: 10.1111/1467-6486.00342

Harkins, P. J., & Giber, D. (1989). Linking business and education through training.

Training and Development Journal, 43(10), 69-71.

Harrison, J. S., & Freeman, R. E. (1999). Stakeholders, social responsibility, and

performance: Empirical evidence and theoretical perspectives. *Academy of*

Management Journal, 42(5), 479-485.

Harrison, J. S., & St. John, C. H. (1996). Managing and partnering with external

stakeholders. *Academy of Management*, 10(2), 46-50.

Henschel, G. (2012). Integrating industry-driven competencies in education and training

through employer engagement. Washington, DC: US. Department of Education

Office of Vocational and Adult Education.

- Horton, D., Prain, G., & Thiele, G. (2009). *Perspectives on partnership: A literature review* [Web log post]. Retrieved from
 mande.co.uk/2009/uncategorized/perspectives-on-partnership-a-literature-review/
- Howe, D. (2012). Marchionne: Fiat needs to take a cue from Chrysler. Retrieved from:
<http://www.detroitnews.com/article/20120306/OPINION03/203060316/1526/AU-TO0101/Marchionne-Fiat-needs-take-cue-from-Chrysler>
- Jacobs, J. (1989). Training the workforce of the future. *Technology Review*, 92(6), 66-72.
- Johnson, T. E. & Youngmin, L. (2008). The relationship between shared mental models and task performance in an online team-based learning environment. *Performance Improvement Quarterly*, 3, 97-112.
- Kanter, R. M. (1994). Collaborative advantage: The art of alliances. *Harvard Business Review* (July-August), 96-108.
- Kanter, R. M. (1999). From spare change to real change: The social sector as beta site for business innovation. *Harvard Business Review*, 77(3), 122-132.
- Kumar, R., & Nti, K. O. (1998). Differential learning and interaction in alliance dynamics: A process and outcome discrepancy model. *Organization Science*, 9(3). doi: 1047-7039/98/0903/0356/\$05.00
- Mattessich, P. W., Murray-Close, B. A., & Monsey, B. R. (2008). *Collaboration: What makes it work*. St. Paul, MN: Fieldstone Publishing.
- McCann, J. (1983). Design guidelines for social problem solving interventions. *Journal of Applied Behavior Science*, 19(2), 177-192.

- McCourt, K. E. (1988). Mr. Goodwrench goes to college: A model for partnerships between corporations and higher education. *Economic Development Review*, 6(2), 20-23.
- Mizrahi, T., & Rosenthal, B. B. (2001). Complexities of coalition building: Leaders' successes, strategies, struggles, and solutions. *Social Work*, 46(1), 63-78.
- Oliver, C. (1990). Determinants of interorganizational relationships: Integration and future directions. *The Academy of Management Review*, 15(2), 241-265.
- Osborn, R. N., & Hagedoorn, J. (1997). The institutionalization and evolutionary dynamics of interorganizational alliances and networks. *Academy of Management Journal*, 40(2), 261-278.
- Patterson, D. J. (2005). *Interorganizational collaboration: The case of college-auto industry partnerships in Ontario* (Doctoral thesis, University of Toronto, Canada). Retrieved from <http://www.worldcat.org/title/interorganizational-collaboration-the-case-of-college-auto-industry-partnerships-in-ontario/oclc/145428447?referer=di&ht=edition>
- Perrault, E. L. J. (2008). *Community-university interorganizational collaboration: A case study of the important factors for success* (Doctoral thesis, University of Calgary, Alberta, Canada). Retrieved from <http://www.ucalgary.ca/fswresearch/files/fswresearch/Perrault.pdf>
- Perrault, E., McClelland, R., Austin, C., & Sieppert, J. (2011). Working together in collaborations: Successful process factors for community collaboration. *Administration in social work*, 35(3), 282-298. doi: 10.1080/03643107.2011.575343

- Perry, N. O. (2000). *Strategic Alliances*. Retrieved from: \ <http://hbswk.hbs.edu/cgi-bin/print/1263.html>
- Pisano, G. P., & Shih, W. C. (2012). Does America really need manufacturing? *Harvard Business Review*, 1-9. Retrieved from <http://hbr.org/2012/03/does-america-really-need-manufacturing/ar/6>
- Roberts N. C., & Bradley, R. T. (1991). Stakeholder collaboration and innovation: A study of public policy initiation at the state. *Journal of Applied Behavior Science*, 27, 209-227. doi: 10.1177/0021886391272004
- Savage, G. T., Bunn, M. D., Gray, B. Xiao, Q., Wang, S., Wilson, E. J., & Williams, E. S. (2010). Stakeholder collaboration: Implications for stakeholder theory and practice. *Journal of Business Ethics*, 96, 21-26.
- Scott, J. (1987). *Organizations*. Englewood Cliffs, NJ: Simon and Schuster.
- Simon, M., Waits, M. J., Fulton, B., & Bird, K. (2010). *A Sharper Focus On Technical Workers: How to Educate and Train for the Global Economy*. Washington, DC: National Governors Association Center for Best Practices.
- Soares, L. (2010). *Community college and industry partnerships*. (Report No. 1). Washington, Retrieved from: <http://www.americanprogress.org/issues/labor/report/2010/10/04/8518/the-power-of-the-education-industry-partnership/>
- Soares, L., & Steigleder, S. (2012). *Building a technically skilled workforce: Partnerships between community colleges and industries are the key*. (Report No. 3). Washington, Retrieved from:

<http://www.americanprogress.org/issues/technology/report/2012/01/19/10986/building-a-technically-skilled-workforce/>

Townsend, B. K., & Dougherty, K. J. (2006). Community college missions: A theoretical and historical perspective. *Community College Missions in the 21st Century*, 136, 5-13.

Townsend, A., & Shelley, K. (2008). Validating an instrument for assessing workforce collaboration. *Community College Journal of Research and Practice*, 32, 101-112. doi: 10.1080/10668920701707813

Wad, P. (2010). *Impact of the global economic and financial crisis over the automotive industry in developing countries*. Vienna, Austria: United Nations Industrial Development Organization, Research and Statistics Branch.

Waddell, S., & Brown, L. D. (1997). Fostering intersectoral partnering: A guide to promoting cooperation among government, business and civil society actors. *IDR Reports*, 13(3). Retrieved from:
<http://www.instituteforstrategicclarity.org/publications/IDR-developmentsteps.pdf>

Walton, P. (2011). *Intensive partnering is required to establish industry certification, Toyota/AMTEC*. Washington, DC: Corporate Voices for Working Families.

Wood, D. J., & Gray, B. (1991). Toward a comprehensive theory of collaboration. *Journal of Applied Behavioral Science*, 27, 139-162. doi: 10.1177/0021886391272001

Yin, R. K. (2009). *Case study research: Design and methods*. Thousand Oaks, CA: Sage Publishing.

APPENDIX A

Factors	Partnership A		Partnership B		Partnership C		Partnership D		Partnership E		Partnership F		Partnership G	
	College	Industry	College	Industry	College	Industry	College	Industry	College	Industry	College	Industry	College	Industry
Factor1	Strength	Strength	Strength	Strength	Strength	Borderline	Strength	Strength	Strength	Borderline	Strength	Strength	Strength	Borderline
Factor2	Strength	Borderline	Strength	Borderline	Borderline	Borderline	Strength	Strength	Strength	Strength	Strength	Strength	Strength	Borderline
Factor3	Strength	Strength	Strength	Concern	Strength	Strength	Strength	Strength	Strength	Strength	Strength	Strength	Strength	Strength
Factor4	Borderline	Borderline	Strength	Strength	Borderline	Strength	Borderline	Borderline	Borderline	Strength	Strength	Strength	Borderline	Strength
Factor5	Strength	Borderline	Strength	Strength	Borderline	Strength	Borderline	Borderline	Strength	Borderline	Strength	Strength	Borderline	Concern
Factor6	Strength	Strength	Strength	Strength	Strength	Strength	Strength	Strength	Strength	Strength	Strength	Strength	Strength	Concern
Factor7	Borderline	Strength	Strength	Strength	Concern	Strength	Strength	Strength	Strength	Strength	Strength	Strength	Strength	Borderline
factor8	Strength	Borderline	Strength	Borderline	Concern	Strength	Strength	Borderline	Borderline	Strength	Strength	Strength	Strength	Borderline
factor9	Strength	Borderline	Strength	Borderline	Concern	Strength	Strength	Strength	Concern	Strength	Strength	Borderline	Strength	Borderline
Factor10	Strength	Strength	Strength	Borderline	Strength	Strength	Strength	Strength	Strength	Strength	Strength	Strength	Strength	Strength
Factor11	Strength	Concern	Strength	Borderline	Concern	Strength	Strength	Strength	Borderline	Borderline	Strength	Borderline	Strength	Borderline
Factor12	Borderline	Concern	Strength	Borderline	Borderline	Strength	Strength	Strength	Strength	Strength	Strength	Strength	Strength	Borderline
Factor13	Strength	Borderline	Strength	Borderline	Concern	Borderline	Borderline	Borderline	Strength	Borderline	Strength	Concern	Strength	Strength
Factor14	Borderline	Borderline	Strength	Strength	Concern	Strength	Strength	Borderline	Borderline	Strength	Strength	Borderline	Strength	Strength
Factor15	Strength	Strength	Strength	Strength	Strength	Strength	Strength	Strength	Strength	Strength	Strength	Strength	Strength	Borderline
Factor16	Strength	Borderline	Strength	Strength	Strength	Borderline	Strength	Strength	Strength	Strength	Strength	Borderline	Strength	Borderline
Factor17	Strength	Borderline	Strength	Strength	Strength	Strength	Strength	Strength	Strength	Strength	Strength	Borderline	Strength	Borderline
Factor18	Strength	Strength	Strength	Strength	Strength	Strength	Strength	Strength	Strength	Strength	Strength	Strength	Strength	Strength
Factor19	Borderline	Borderline	Borderline	Concern	Borderline	Concern	Borderline	Borderline	Strength	Concern	Strength	Borderline	Borderline	Borderline
Factor20	Strength	Borderline	Strength	Strength	Concern	Strength	Strength	Strength	Strength	Strength	Strength	Strength	Strength	Strength

APPENDIX B

Continuum #	Partnership A		Partnership B		Partnership C		Partnership D		Partnership E		Partnership F		Partnership G	
	College	Industry	College	Industry	College	Industry	College	Industry	College	Industry	College	Industry	College	Industry
1	Philanthropic	Philanthropic	Transition	Integrated	Transition	Integrated	Transition	Transition	Transition	Transition	Integrated	Transition	Transition	Philanthropic
2	Philanthropic	Philanthropic	Transition	Transition	Transition	Integrated	Transition	Transition	Transition	Transition	Integrated	Philanthropic	Philanthropic	Philanthropic
3	Philanthropic	Philanthropic	Transition	Transition	Transition	Transition	Transition	Transition	Transition	Transition	Transition	Transition	Transition	Philanthropic
4	Philanthropic	Transition	Transition	Transition	Transition	Integrated	Transition	Transition	Transition	Transition	Transition	Transition	Transition	Philanthropic
5	Philanthropic	Philanthropic	Transition	Transition	Transition	Transition	Transition	Transition	Integrated	Philanthropic	Transition	Transition	Transition	Philanthropic
6	Philanthropic	Philanthropic	Integrated	Integrated	Transition	Transition	Transition	Transition	Transition	Transition	Transition	Philanthropic	Transition	Philanthropic
7	Philanthropic	Philanthropic	Transition	Transition	Transition	Integrated	Transition	Transition	Transition	Transition	Transition	Transition	Transition	Philanthropic
8	Philanthropic	Transition	Integrated	Transition	Philanthropic	Transition	Transition	Transition	Transition	Philanthropic	Integrated	Transition	Transition	Philanthropic
9	Philanthropic	Philanthropic	Integrated	Integrated	Transition	Transition	Philanthropic	Transition	Transition	Transition	Integrated	Philanthropic	Philanthropic	Philanthropic
10	Philanthropic	Transition	Integrated	Integrated	Transition	Integrated	Integrated	Transition	Integrated	Integrated	Integrated	Transition	Integrated	Philanthropic

APPENDIX C
INFORMED CONSENT DOCUMENT

If this is your third year for your Continuing Review Request, please complete a new application.

Name of Project: Key Factors and Stages of Collaboration within Community
College - Automotive Industry Sector Partnerships

Name of Researcher: Parker, Annette

Department: Educational Leadership

How many total subjects have participated in the study since its inception? #0_____

How many subjects have participated in the project since the last review? #0_____

Is your data collection with human subjects complete? ☐ **Yes** ☒ **No**
(If "Yes", please sign below and return to the Office of Research Compliance, Room 301, Potter Hall. If "No", please respond to the questions below, sign and return).

1. Has there been any change in the level of risks to human subjects?
(If "Yes", please explain changes on a separate sheet). ☐ Yes ☒ No
2. Have informed consent procedures changed so as to put subjects
above minimal risk? (If "Yes", please describe on a separate sheet). ☐ Yes ☒ No
3. Have any subjects withdrawn from the research due to adverse
events or any unanticipated risks/problems? (If "Yes", please
describe on a separate sheet). ☐ Yes ☒ No
4. Have there been any changes to the source(s) of subjects and the
Selection criteria? (If "Yes", please describe on a separate sheet). Yes No
5. Have there been any changes to your research design that were
not specified in your application, including the frequency, duration
and location of each procedure. (If "Yes", please describe on a
separate sheet). ☒ Yes ☐ No
6. Has there been any change to the way in which confidentiality of the
Data is maintained? (If "Yes", please describe on a separate sheet). ☐ Yes ☒ No
7. Is there desire to extend the time line of the project? ☐ Yes ☒ No
On what date do you anticipate data collection with human subjects to be completed? June 30, 2012.

The original plan was to conduct the interviews from March 21-23, 2012. This was not accomplished because there was not enough time to complete Chapter 3 of the dissertation and notify and get approval of participants with Informed Consent. The change now involves completing the interviews through taped telephone conference calls. The timeline has now been extended to get consent and complete the study through the month of June, ending June 30, 2012.

Project Title: Key Factors and Stages of Collaboration within Community College – Automotive Industry Sector Partnerships

Investigator: Annette Parker, Chancellor's Office, Kentucky Community & Technical College System, 859-753-7736

You are being asked to participate in a project conducted through Western Kentucky University (WKU) and the Kentucky Community & Technical College System (KCTCS), Automotive Manufacturing Technical Education Collaborative (AMTEC). The University requires that you give your agreement to participate in this project that the research is approved by the WKU's Institutional Research Board.

The investigator will explain to you in detail the purpose of the project, the procedures to be used, and the potential benefits and possible risks of participation. You may ask her any questions you have to help you understand the project. A basic explanation of the project is written below. Please read this explanation and discuss with the researcher any questions you may have. You should be given a copy of this form to keep.

1. Nature and Purpose of the Project:

The purpose of the study is to advance research and understanding in respect to the dynamics of college-industry collaboration that will help community college leadership, and policy makers develop the techniques and guidelines to ensure successful collaborations within sectors.

2. Explanation of Procedures:

I ask that you complete an electronic survey administered to both the AMTEC industry and education partners. This survey will also require you to reflect upon your collaboration relative to a research based framework category along a collaboration scale. The results will be used to indicate each participant's perceived stage of collaboration. This survey should take you approximately 60 minutes to complete.

The AMTEC third party evaluator research team will administer recorded telephone interviews that the researcher will schedule. The interviews will be recorded and the research assistant will also take notes. The interviews will be scheduled before the end of June 2012.

3. Discomfort and Risks:

There are no foreseeable risks associated with this research project and the probability and magnitude of harm or discomfort anticipated in the research is very minimal.

4. **Benefits:**

The research and understanding in respect to the dynamics of college-industry collaboration based key factors and stages within the AMTEC community college-automotive manufacturing partnership can expand on prior research and develop new understandings that help strengthen community college- automotive industry collaboration, while helping community college leadership, and policy makers develop the techniques and guidelines to ensure successful collaborations with other critical regional and sectors.

5. **Confidentiality:**

The survey does not contain any identifiable information, anonymity is assured, and all data will be reported in the aggregate or coded so that participants cannot be identified.

6. **Refusal/Withdrawal:**

Refusal to participate in this study will have no effect on any future services you may be entitled to from the University. Anyone who agrees to participate in this study is free to withdraw from the study at any time with no penalty.

You understand also that it is not possible to identify all potential risks in an experimental procedure, and you believe that reasonable safeguards have been taken to minimize both the known and potential but unknown risks.

Your continued cooperation with the following survey implies your consent.

Please continue on to the survey.

Thank you, Annette Parker.

THE DATED APPROVAL ON THIS CONSENT FORM INDICATES THAT
THIS PROJECT HAS BEEN REVIEWED AND APPROVED BY
THE WESTERN KENTUCKY UNIVERSITY INSTITUTIONAL REVIEW BOARD
Paul Mooney, Human Protections Administrator
TELEPHONE: (270) 745-6733

WKU IRB#12-135
Approval - 5/2/2012
End Date - 8/31/2012
Expedited
Original - 2/2/2012

INTERVIEWS ON AMTEC COLLEGE-INDUSTRY PARTNERSHIPS

Informed Consent Telephone Interview Script:

You have previously indicated that you are willing to participate in a project conducted through Western Kentucky University (WKU) and the Kentucky Community & Technical College System (KCTCS), Automotive Manufacturing Technical Education Collaborative (AMTEC). The University requires that you give your agreement to participate in this project that the research is approved by the WKU's Institutional Research Board.

This telephone call is being recorded.

1. Nature and Purpose of the Project:

This interview will serve two purposes. First, it will generate data that will be used for Annette Parker's doctoral dissertation research. The purpose of the dissertation study is to advance research and understanding in respect to the dynamics of college-industry collaboration that will help community college leadership, and policy makers develop the techniques and guidelines to ensure successful collaborations within sectors. Second, it will provide information that is useful for the evaluation of AMTEC's partnerships. Copies of the recordings will be used by Ms. Parker and the evaluation team for the purposes mentioned previously.

2. Explanation of Procedure:

The recorded structured interview will identify factors that deal with relationship management and contribution to partnering effectiveness, such as mutual expectations and accountability.

3. Discomfort and Risks:

There are no foreseeable risks associated with this research project and the probability and magnitude of harm or discomfort anticipated in the research is very minimal.

4. Benefits:

The research and understanding in respect to the dynamics of college-industry collaboration will expand on prior research and develop fostering on new understandings that help strengthen community college- automotive industry collaboration.

5. Confidentiality:

The survey does not contain any identifiable information, anonymity is assured, and all data will be reported in the aggregate or coded so that participants cannot be identified.

6. Refusal/Withdrawal:

Refusal to participate in this study will have no effect on any future services you may be entitled to from Western Kentucky University (WKU) and the Kentucky Community & Technical College System (KCTCS), Automotive Manufacturing Technical Education Collaborative (AMTEC). Anyone who agrees to participate in this study is free to withdraw from the study at any time with no penalty.

Thank you for your continued cooperation of this study which implies your consent to participate in this telephone interview. This telephone call is being recorded.

Please provide your name and contact information:

Do you consent to proceeding with this telephone interview?

Participant Interview Instrument Questions

1. Do you represent a college or an industry within the AMTEC initiative?
2. Please provide an example of how your organization works together with your AMTEC college/industry partner to solve problems.
3. Please provide an example of how someone from your organization's leadership (not a part of the AMTEC leadership Team) have expressed their support for the college-industry partnership and the AMTEC initiative.
4. What are the internal organizational perceptions of the value of working with your AMTEC partner?
5. Please comment on whether you think the timing has been right for your organization's involvement with AMTEC.
6. Please share an example of how you or your organization has witnessed sharing and trust within the AMTEC organization.
7. Share with us an example of how your organization gets involvement from a cross section of stakeholders within your AMTEC college- industry partnership (e.g., faculty and leaders in the college, or people in different roles in industry).
8. Please provide an example of how your organization has benefited from participating in the AMTEC partnership.

9. Please share how you and your college/industry partner invest time in AMTEC collaborative efforts.
10. Share a specific experience where you worked with your college-industry partners to make an important decision.
11. Share an example of how your college-industry partner showed flexibility and/or openness to different options.
12. Provide an example of how you and your college-industry partner have demonstrated a clear understanding of each other's roles and responsibilities.
13. Please provide an example of how your college-industry partnership made changes to adapt to financial, political, or other changes.
14. Share how your college-industry partnership works together to make sure that work is distributed properly amongst the partners.
15. Please provide an example of how your partners have openly shared and communicated important information to each other.
16. How often do you have formal and informal conversations with your college-industry partner? What are the main topics that you discuss?
17. Please share what you believe to be the goals of AMTEC.
18. What is your understanding of what the AMTEC college-industry partnerships are attempting to accomplish?

Date of interview:_____

Interviewer:_____

